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(54) Title: SECRETED PROTEINS AND POLYNUCLEOTIDES ENCODING THEM

(57) Abstract: Novel polynucleotides and the proteins encoded thereby are disclosed.

SECRETED PROTEINS AND POLYNUCLEOTIDES ENCODING THEM

5 This application is a continuation-in-part of the following applications:

- (1) Ser. No. 09/197,886 (GI 6055A), filed November 23, 1998; which is a continuation-in-part of provisional application Ser. No. 60/126,425 (GI 6055), filed November 26, 1997, now abandoned;
- 10 (2) Ser. No. 09/203,106 (GI 6056A), filed November 30, 1998; which is a continuation-in-part of provisional application Ser. No. 60/067,454 (GI 6056), filed December 4, 1997, now abandoned;
- (3) Ser. No. 09/212,843 (GI 6057A), filed December 16, 1998; which is a continuation-in-part of provisional application Ser. No. 60/068,379 (GI 6057), filed December 15, 1997, now abandoned;
- (4) Ser. No. 09/222,653 (GI 6058A), filed December 30, 1998; which is a continuation-in-part of provisional application Ser. No. 60/070,346 (GI 6058), filed January 2, 1998, now abandoned;
- 20 (5) Ser. No. 09/225,049 (GI 6059A), filed January 4, 1999; which is a continuation-in-part of provisional application Ser. No. 60/070,643 (GI 6059), filed January 7, 1998, now abandoned;
- (6) Ser. No. 09/225,585 (GI 6060A), filed January 6, 1999; which is a continuation-in-part of provisional application Ser. No. 60/070,755 (GI 6060), filed January 8, 1998, now abandoned;
- 25 (7) Ser. No. 09/227,462 (GI 6061A), filed January 8, 1999; which is a continuation-in-part of provisional application Ser. No. 60/071,304 (GI 6061), filed January 13, 1998, now abandoned;

- (8) Ser. No. 09/235,609 (GI 6062A), filed January 20, 1999; which is a continuation-in-part of provisional application Ser. No. 60/072,134 (GI 6062), filed January 22, 1998, now abandoned;
- 5 (9) Ser. No. 09/237,847 (GI 6063A), filed January 27, 1999; which is a continuation-in-part of provisional application Ser. No. 60/073,095 (GI 6063), filed January 30, 1998, now abandoned;
- (10) Ser. No. 09/251,600 (GI 6064A), filed February 17, 1999; which is a continuation-in-part of provisional application Ser. No. 60/075,038 (GI 6064), filed February 18, 1998, now abandoned;
- 10 all of which are incorporated by reference herein.

FIELD OF THE INVENTION

The present invention provides novel polynucleotides and proteins encoded by such polynucleotides, along with therapeutic, diagnostic and research utilities for these 15 polynucleotides and proteins.

BACKGROUND OF THE INVENTION

Technology aimed at the discovery of protein factors (including e.g., cytokines, such as lymphokines, interferons, CSFs and interleukins) has matured rapidly over the 20 past decade. The now routine hybridization cloning and expression cloning techniques clone novel polynucleotides "directly" in the sense that they rely on information directly related to the discovered protein (i.e., partial DNA/amino acid sequence of the protein in the case of hybridization cloning; activity of the protein in the case of expression cloning). More recent "indirect" cloning techniques such as signal sequence cloning, 25 which isolates DNA sequences based on the presence of a now well-recognized secretory leader sequence motif, as well as various PCR-based or low stringency hybridization cloning techniques, have advanced the state of the art by making available large numbers of DNA/amino acid sequences for proteins that are known to have biological activity by virtue of their secreted nature in the case of leader sequence cloning, or by virtue of the 30 cell or tissue source in the case of PCR-based techniques. It is to these proteins and the polynucleotides encoding them that the present invention is directed.

SUMMARY OF THE INVENTION

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:1;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:1 from nucleotide 63 to nucleotide 1265;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:1 from nucleotide 132 to nucleotide 1265;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bd306_7 deposited with the ATCC under accession number 98599;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bd306_7 deposited with the ATCC under accession number 98599;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bd306_7 deposited with the ATCC under accession number 98599;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bd306_7 deposited with the ATCC under accession number 98599;
- 20 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:2;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:2 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:2;
- 25 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:1 from nucleotide 63 to nucleotide 1265; the nucleotide sequence of SEQ ID NO:1

from nucleotide 132 to nucleotide 1265; the nucleotide sequence of the full-length protein coding sequence of clone bd306_7 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone bd306_7 deposited with the ATCC under accession number 98599. In other preferred 5 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bd306_7 deposited with the ATCC under accession number 98599. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:2 from amino acid 148 to amino acid 189. In further preferred embodiments, the present 10 invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:2 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:2, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:2 having biological activity, the fragment 15 comprising the amino acid sequence from amino acid 195 to amino acid 204 of SEQ ID NO:2.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:1.

Further embodiments of the invention provide isolated polynucleotides produced 20 according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:1, but excluding the poly(A) tail at the 25 3' end of SEQ ID NO:1; and
 - (ab) the nucleotide sequence of the cDNA insert of clone bd306_7 deposited with the ATCC under accession number 98599; and
 - (ii) hybridizing said probe(s) to human DNA; and
 - (iii) isolating the DNA polynucleotide detected with the probe(s);

and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:1, but excluding the poly(A) tail at the 3' end of SEQ ID NO:1; and

(bb) the nucleotide sequence of the cDNA insert of clone bd306_7 deposited with the ATCC under accession number 98599; and

10 (ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:1, and

15 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:1 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:1 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:1. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:1 from nucleotide 63 to nucleotide

20 1265, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:1 from nucleotide 63 to nucleotide 1265, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:1 from nucleotide 63 to nucleotide 1265. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID

25 NO:1 from nucleotide 132 to nucleotide 1265, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:1 from nucleotide 132 to nucleotide 1265, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:1 from nucleotide 132 to nucleotide 1265.

In other embodiments, the present invention provides a composition comprising
30 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:2;

- (b) the amino acid sequence of SEQ ID NO:2 from amino acid 148 to amino acid 189;
- (c) fragments of the amino acid sequence of SEQ ID NO:2 comprising eight consecutive amino acids of SEQ ID NO:2; and
- 5 (d) the amino acid sequence encoded by the cDNA insert of clone bd306_7 deposited with the ATCC under accession number 98599; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:2 or the amino acid sequence of SEQ ID NO:2 from amino acid 148 to amino acid 189. In further preferred 10 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:2 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:2, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:2 having biological activity, the fragment comprising the amino acid sequence from amino acid 195 to amino acid 204 of SEQ ID NO:2.
- 15

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:3;
- 20 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:3 from nucleotide 719 to nucleotide 1855;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:3 from nucleotide 779 to nucleotide 1855;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone fJ283_11 deposited with the ATCC under 25 accession number 98599;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone fJ283_11 deposited with the ATCC under accession number 98599;
- 30 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone fJ283_11 deposited with the ATCC under accession number 98599;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone fj283_11 deposited with the ATCC under accession number 98599;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:4;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:4;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:3 from nucleotide 719 to nucleotide 1855; the nucleotide sequence of SEQ ID NO:3 from nucleotide 779 to nucleotide 1855; the nucleotide sequence of the full-length protein coding sequence of clone fj283_11 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone fj283_11 deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone fj283_11 deposited with the ATCC under accession number 98599. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:4 from amino acid 1 to amino acid 27. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:4, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 having biological activity, the fragment comprising the amino acid sequence from amino acid 184 to amino acid 193 of SEQ ID NO:4.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:3.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
- (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- (aa) SEQ ID NO:3, but excluding the poly(A) tail at the 3' end of SEQ ID NO:3; and
- (ab) the nucleotide sequence of the cDNA insert of clone fJ283_11 deposited with the ATCC under accession number 98599; and
- (ii) hybridizing said probe(s) to human DNA; and
- (iii) isolating the DNA polynucleotide detected with the probe(s);

15 and

- (b) a process comprising the steps of:
- (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- (ba) SEQ ID NO:3, but excluding the poly(A) tail at the 3' end of SEQ ID NO:3; and
- (bb) the nucleotide sequence of the cDNA insert of clone fJ283_11 deposited with the ATCC under accession number 98599; and
- (ii) hybridizing said primer(s) to human DNA;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:3, and 30 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:3 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:3, but excluding the poly(A) tail at the 3' end of SEQ ID NO:3. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence

corresponding to the cDNA sequence of SEQ ID NO:3 from nucleotide 719 to nucleotide 1855, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:3 from nucleotide 719 to nucleotide 1855, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:3 from nucleotide 719 to nucleotide 1855. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:3 from nucleotide 779 to nucleotide 1855, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:3 from nucleotide 779 to nucleotide 1855, to a nucleotide sequence corresponding to the 3' end 10 of said sequence of SEQ ID NO:3 from nucleotide 779 to nucleotide 1855.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:4;
- 15 (b) the amino acid sequence of SEQ ID NO:4 from amino acid 1 to amino acid 27;
- (c) fragments of the amino acid sequence of SEQ ID NO:4 comprising eight consecutive amino acids of SEQ ID NO:4;
- (d) the amino acid sequence encoded by the cDNA insert of clone 20 fj283_11 deposited with the ATCC under accession number 98599; and
- (e) the amino acid sequence encoded by the cDNA insert of clone fj283_6 deposited with the ATCC under accession number xxxx;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:4 or the amino acid sequence 25 of SEQ ID NO:4 from amino acid 1 to amino acid 27. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:4, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 30 having biological activity, the fragment comprising the amino acid sequence from amino acid 184 to amino acid 193 of SEQ ID NO:4.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:198;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:198 from nucleotide 982 to nucleotide 2118;
- 5 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:198 from nucleotide 1042 to nucleotide 2118;
- (d) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:198 from nucleotide 621 to nucleotide 1248;
- 10 (e) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone fJ283_6 deposited with the ATCC under accession number 98988;
- (f) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone fJ283_6 deposited with the ATCC under accession number 98988;
- 15 (g) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone fJ283_6 deposited with the ATCC under accession number 98988;
- (h) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone fJ283_6 deposited with the ATCC under accession number 98988;
- 20 (i) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:4;
- (j) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:4;
- 25 (k) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(h) above;
- (l) a polynucleotide which encodes a species homologue of the protein of (i) or (j) above ; and
- (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(j).

30 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:198 from nucleotide 982 to nucleotide 2118; the nucleotide sequence of SEQ ID NO:198 from nucleotide 1042 to nucleotide 2118; the nucleotide sequence of SEQ ID

NO:198 from nucleotide 621 to nucleotide 1248; the nucleotide sequence of the full-length protein coding sequence of clone fJ283_6 deposited with the ATCC under accession number 98988; or the nucleotide sequence of a mature protein coding sequence of clone fJ283_6 deposited with the ATCC under accession number 98988. In other preferred 5 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone fJ283_6 deposited with the ATCC under accession number 98988. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 having biological activity, the fragment preferably comprising eight (more 10 preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:4, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:4 having biological activity, the fragment comprising the amino acid sequence from amino acid 184 to amino acid 193 of SEQ ID NO:4.

Other embodiments provide the gene corresponding to the cDNA sequence of 15 SEQ ID NO:198.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize 20 in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:198, but excluding the poly(A) tail at the 3' end of SEQ ID NO:198; and
 - (ab) the nucleotide sequence of the cDNA insert of clone fJ283_6 deposited with the ATCC under accession number 98988; and
 - (ii) hybridizing said probe(s) to human DNA; and
 - (iii) isolating the DNA polynucleotide detected with the probe(s);
- 25 and
 - (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:198, but excluding the poly(A) tail at the 3' end of SEQ ID NO:198; and

10 (bb) the nucleotide sequence of the cDNA insert of clone fj283_6 deposited with the ATCC under accession number 98988; and

(ii) hybridizing said primer(s) to human DNA;

15 (iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:198, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ

15 ID NO:198 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:198, but excluding the poly(A) tail at the 3' end of SEQ ID NO:198. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:198 from nucleotide 982 to nucleotide 2118, and extending contiguously from a nucleotide sequence corresponding to

20 to the 5' end of said sequence of SEQ ID NO:198 from nucleotide 982 to nucleotide 2118, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:198 from nucleotide 982 to nucleotide 2118. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:198 from nucleotide 1042 to nucleotide 2118, and

25 extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:198 from nucleotide 1042 to nucleotide 2118, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:198 from nucleotide 1042 to nucleotide 2118. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of

30 SEQ ID NO:198 from nucleotide 621 to nucleotide 1248, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:198 from nucleotide 621 to nucleotide 1248, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:198 from nucleotide 621 to nucleotide 1248.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:5;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:5 from nucleotide 259 to nucleotide 624;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone fk317_3 deposited with the ATCC under accession number 98599;
- 10 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone fk317_3 deposited with the ATCC under accession number 98599;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone fk317_3 deposited with the ATCC under accession number 98599;
- 15 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone fk317_3 deposited with the ATCC under accession number 98599;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:6;
- 20 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:6 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:6;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- 25 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:5 from nucleotide 259 to nucleotide 624; the nucleotide sequence of the full-length protein coding sequence of clone fk317_3 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone fk317_3 deposited with the ATCC under accession number 98599. In other preferred

embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone fk317_3 deposited with the ATCC under accession number 98599. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:6 from amino acid 1 to amino acid 72. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:6 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:6, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:6 having biological activity, the fragment comprising the amino acid sequence from amino acid 56 to amino acid 65 of SEQ ID NO:6.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:5.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:5, but excluding the poly(A) tail at the 3' end of SEQ ID NO:5; and
 - (ab) the nucleotide sequence of the cDNA insert of clone fk317_3 deposited with the ATCC under accession number 98599;
 - and
 - (ii) hybridizing said probe(s) to human DNA; and
 - (iii) isolating the DNA polynucleotide detected with the probe(s);
- and
- (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:5, but excluding the poly(A) tail at the 3' end of SEQ ID NO:5; and

(bb) the nucleotide sequence of the cDNA insert of clone fk317_3 deposited with the ATCC under accession number 98599;

5 and

(ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a 10 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:5, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:5 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:5 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:5. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 15 corresponding to the cDNA sequence of SEQ ID NO:5 from nucleotide 259 to nucleotide 624, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:5 from nucleotide 259 to nucleotide 624, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:5 from nucleotide 259 to nucleotide 624.

20 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:6;

(b) the amino acid sequence of SEQ ID NO:6 from amino acid 1 to

25 amino acid 72;

(c) fragments of the amino acid sequence of SEQ ID NO:6 comprising eight consecutive amino acids of SEQ ID NO:6; and

(d) the amino acid sequence encoded by the cDNA insert of clone fk317_3 deposited with the ATCC under accession number 98599;

30 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:6 or the amino acid sequence of SEQ ID NO:6 from amino acid 1 to amino acid 72. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid

sequence of SEQ ID NO:6 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:6, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:6 having biological activity, the fragment comprising the amino acid sequence from amino acid 56 to amino acid 65 of SEQ ID NO:6.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:7;
- 10 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:7 from nucleotide 357 to nucleotide 578;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:7 from nucleotide 471 to nucleotide 578;
- 15 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone k213_2x deposited with the ATCC under accession number 98599;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone k213_2x deposited with the ATCC under accession number 98599;
- 20 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone k213_2x deposited with the ATCC under accession number 98599;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone k213_2x deposited with the ATCC under accession number 98599;
- 25 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:8;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:8 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:8;
- 30 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:7 from nucleotide 357 to nucleotide 578; the nucleotide sequence of SEQ ID NO:7 from nucleotide 471 to nucleotide 578; the nucleotide sequence of the full-length protein coding sequence of clone k213_2x deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone k213_2x deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone k213_2x deposited with the ATCC under accession number 98599. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:8 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:8, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:8 having biological activity, the fragment comprising the amino acid sequence from amino acid 32 to amino acid 41 of SEQ ID NO:8.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:7.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:7, but excluding the poly(A) tail at the 3' end of SEQ ID NO:7; and

(ab) the nucleotide sequence of the cDNA insert of clone k213_2x deposited with the ATCC under accession number 98599;

and

(ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

- (b) a process comprising the steps of:
- (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- 5 (ba) SEQ ID NO:7, but excluding the poly(A) tail at the 3' end of SEQ ID NO:7; and
- (bb) the nucleotide sequence of the cDNA insert of clone k213_2x deposited with the ATCC under accession number 98599;
- 10 and
- (ii) hybridizing said primer(s) to human DNA;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:7, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:7 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:7, but excluding the poly(A) tail at the 3' end of SEQ ID NO:7. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:7 from nucleotide 357 to nucleotide 578, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:7 from nucleotide 357 to nucleotide 578, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:7 from nucleotide 357 to nucleotide 578. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:7 from nucleotide 471 to nucleotide 578, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:7 from nucleotide 471 to nucleotide 578, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:7 from nucleotide 471 to nucleotide 578.

30 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:8;

- (b) fragments of the amino acid sequence of SEQ ID NO:8 comprising eight consecutive amino acids of SEQ ID NO:8; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone k213_2x deposited with the ATCC under accession number 98599;
- 5 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:8. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:8 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:8, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:8 having biological activity, the fragment comprising the amino acid sequence from amino acid 32 to amino acid 41 of SEQ ID NO:8.
- 10

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 15 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:9;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:9 from nucleotide 332 to nucleotide 598;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:9 from nucleotide 458 to nucleotide 598;
- 20 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone na316_1 deposited with the ATCC under accession number 98599;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone na316_1 deposited with the ATCC under accession number 98599;
- 25 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone na316_1 deposited with the ATCC under accession number 98599;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone na316_1 deposited with the ATCC under accession number 98599;
- 30 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:10;

- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:10 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:10;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 5 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

10 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:9 from nucleotide 332 to nucleotide 598; the nucleotide sequence of SEQ ID NO:9 from nucleotide 458 to nucleotide 598; the nucleotide sequence of the full-length protein coding sequence of clone na316_1 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone na316_1
15 deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone na316_1 deposited with the ATCC under accession number 98599. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of
20 SEQ ID NO:10 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:10, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:10 having biological activity, the fragment comprising the amino acid sequence from amino acid 39 to amino acid 48 of SEQ ID NO:10.

25 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:9.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - 30 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:9, but excluding the poly(A) tail at the 3' end of SEQ ID NO:9; and

(ab) the nucleotide sequence of the cDNA insert of clone na316_1 deposited with the ATCC under accession number 98599; and

5

(ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

10

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6XSSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

15

(ba) SEQ ID NO:9, but excluding the poly(A) tail at the 3' end of SEQ ID NO:9; and

(bb) the nucleotide sequence of the cDNA insert of clone na316_1 deposited with the ATCC under accession number 98599; and

20

(ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:9, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:9 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:9 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:9. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:9 from nucleotide 332 to nucleotide 598, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:9 from nucleotide 332 to nucleotide 598, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:9 from nucleotide 332 to nucleotide 598. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID

NO:9 from nucleotide 458 to nucleotide 598, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:9 from nucleotide 458 to nucleotide 598, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:9 from nucleotide 458 to nucleotide 598.

5 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:10;
- (b) fragments of the amino acid sequence of SEQ ID NO:10 comprising
10 eight consecutive amino acids of SEQ ID NO:10; and
- (c) the amino acid sequence encoded by the cDNA insert of clone na316_1 deposited with the ATCC under accession number 98599;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:10. In further preferred
15 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:10 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:10, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:10 having biological activity, the fragment comprising the amino acid
20 sequence from amino acid 39 to amino acid 48 of SEQ ID NO:10.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:11;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:11 from nucleotide 354 to nucleotide 986;
25
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:11 from nucleotide 408 to nucleotide 986;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nf93_20 deposited with the ATCC under
30 accession number 98599;

- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nf93_20 deposited with the ATCC under accession number 98599;
 - 5 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nf93_20 deposited with the ATCC under accession number 98599;
 - (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nf93_20 deposited with the ATCC under accession number 98599;
 - 10 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:12;
 - (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:12 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:12;
 - 15 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
 - (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- 20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:11 from nucleotide 354 to nucleotide 986; the nucleotide sequence of SEQ ID NO:11 from nucleotide 408 to nucleotide 986; the nucleotide sequence of the full-length protein coding sequence of clone nf93_20 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone nf93_20
- 25 deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nf93_20 deposited with the ATCC under accession number 98599. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of
- 30 SEQ ID NO:12 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:12, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence

of SEQ ID NO:12 having biological activity, the fragment comprising the amino acid sequence from amino acid 100 to amino acid 109 of SEQ ID NO:12.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:11.

5 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10 (aa) SEQ ID NO:11, but excluding the poly(A) tail at the 3' end of SEQ ID NO:11; and

(ab) the nucleotide sequence of the cDNA insert of clone nf93_20 deposited with the ATCC under accession number 98599;

15 and

(ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

20 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

25 (ba) SEQ ID NO:11, but excluding the poly(A) tail at the 3' end of SEQ ID NO:11; and

(bb) the nucleotide sequence of the cDNA insert of clone nf93_20 deposited with the ATCC under accession number 98599;

and

(ii) hybridizing said primer(s) to human DNA;

30 (iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:11, and

extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:11 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:11 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:11. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 5 corresponding to the cDNA sequence of SEQ ID NO:11 from nucleotide 354 to nucleotide 986, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:11 from nucleotide 354 to nucleotide 986, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:11 from nucleotide 354 to nucleotide 986. Also preferably the polynucleotide isolated according to the above 10 process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:11 from nucleotide 408 to nucleotide 986, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:11 from nucleotide 408 to nucleotide 986, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:11 from nucleotide 408 to nucleotide 986.

15 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:12;
 - (b) fragments of the amino acid sequence of SEQ ID NO:12 comprising eight consecutive amino acids of SEQ ID NO:12; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone nf93_20 deposited with the ATCC under accession number 98599;
- 20 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:12. In further preferred 25 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:12 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:12, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:12 having biological activity, the fragment comprising the amino acid 30 sequence from amino acid 100 to amino acid 109 of SEQ ID NO:12.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:13;
 - (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:13 from nucleotide 301 to nucleotide 1821;
 - 5 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:13 from nucleotide 1381 to nucleotide 1821;
 - (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone np164_1 deposited with the ATCC under accession number 98599;
 - 10 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone np164_1 deposited with the ATCC under accession number 98599;
 - (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone np164_1 deposited with the ATCC under accession number 98599;
 - 15 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone np164_1 deposited with the ATCC under accession number 98599;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:14;
 - 20 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:14 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:14;
 - (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - 25 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
 - (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:13 from nucleotide 301 to nucleotide 1821; the nucleotide sequence of SEQ ID NO:13 from nucleotide 1381 to nucleotide 1821; the nucleotide sequence of the full-length protein coding sequence of clone np164_1 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone

np164_1 deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone np164_1 deposited with the ATCC under accession number 98599. In further preferred embodiments, the present invention provides a 5 polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:14 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:14, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:14 having biological activity, the fragment comprising the amino acid 10 sequence from amino acid 248 to amino acid 257 of SEQ ID NO:14.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:13.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 15 (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
(aa) SEQ ID NO:13, but excluding the poly(A) tail at the
20 3' end of SEQ ID NO:13; and
(ab) the nucleotide sequence of the cDNA insert of clone np164_1 deposited with the ATCC under accession number 98599;
and
(ii) hybridizing said probe(s) to human DNA; and
25 (iii) isolating the DNA polynucleotide detected with the probe(s);
and
(b) a process comprising the steps of:
(i) preparing one or more polynucleotide primers that
30 hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
(ba) SEQ ID NO:13, but excluding the poly(A) tail at the
3' end of SEQ ID NO:13; and

- (bb) the nucleotide sequence of the cDNA insert of clone np164_1 deposited with the ATCC under accession number 98599; and
- 5 (ii) hybridizing said primer(s) to human DNA;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:13, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 10 ID NO:13 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:13, but excluding the poly(A) tail at the 3' end of SEQ ID NO:13. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:13 from nucleotide 301 to nucleotide 1821, and extending contiguously from a nucleotide sequence corresponding to the 5' end 15 of said sequence of SEQ ID NO:13 from nucleotide 301 to nucleotide 1821, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:13 from nucleotide 301 to nucleotide 1821. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:13 from nucleotide 1381 to nucleotide 1821, and extending contiguously from 20 a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:13 from nucleotide 1381 to nucleotide 1821, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:13 from nucleotide 1381 to nucleotide 1821.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 25 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:14;
- (b) fragments of the amino acid sequence of SEQ ID NO:14 comprising eight consecutive amino acids of SEQ ID NO:14; and
- (c) the amino acid sequence encoded by the cDNA insert of clone 30 np164_1 deposited with the ATCC under accession number 98599;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:14. In further preferred embodiments, the present invention provides a protein comprising a fragment of the

amino acid sequence of SEQ ID NO:14 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:14, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:14 having biological activity, the fragment comprising the amino acid sequence from amino acid 248 to amino acid 257 of SEQ ID NO:14.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:15;
- 10 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:15 from nucleotide 148 to nucleotide 537;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pe204_1 deposited with the ATCC under accession number 98599;
- 15 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pe204_1 deposited with the ATCC under accession number 98599;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pe204_1 deposited with the ATCC under accession number 98599;
- 20 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pe204_1 deposited with the ATCC under accession number 98599;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:16;
- 25 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:16 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:16;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(h) above;
- 30 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:15 from nucleotide 148 to nucleotide 537; the nucleotide sequence of the full-length protein coding sequence of clone pe204_1 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone 5 pe204_1 deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pe204_1 deposited with the ATCC under accession number 98599. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of 10 SEQ ID NO:16 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:16, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:16 having biological activity, the fragment comprising the amino acid sequence from amino acid 60 to amino acid 69 of SEQ ID NO:16.

15 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:15.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:15, but excluding the poly(A) tail at the 3' end of SEQ ID NO:15; and
 - (ab) the nucleotide sequence of the cDNA insert of clone pe204_1 deposited with the ATCC under accession number 98599; and
 - (ii) hybridizing said probe(s) to human DNA; and
 - (iii) isolating the DNA polynucleotide detected with the probe(s);
- and
- (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:15, but excluding the poly(A) tail at the 3' end of SEQ ID NO:15; and

(bb) the nucleotide sequence of the cDNA insert of clone pe204_1 deposited with the ATCC under accession number 98599; and

(ii) hybridizing said primer(s) to human DNA;

10 (iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:15, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 15 ID NO:15 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:15 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:15. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:15 from nucleotide 148 to nucleotide 537, and extending contiguously from a nucleotide sequence corresponding to the 5' end 20 of said sequence of SEQ ID NO:15 from nucleotide 148 to nucleotide 537, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:15 from nucleotide 148 to nucleotide 537.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 25 group consisting of:

(a) the amino acid sequence of SEQ ID NO:16;

(b) fragments of the amino acid sequence of SEQ ID NO:16 comprising eight consecutive amino acids of SEQ ID NO:16; and

(c) the amino acid sequence encoded by the cDNA insert of clone 30 pe204_1 deposited with the ATCC under accession number 98599;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:16. In further preferred embodiments, the present invention provides a protein comprising a fragment of the

amino acid sequence of SEQ ID NO:16 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:16, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:16 having biological activity, the fragment comprising the amino acid sequence from amino acid 60 to amino acid 69 of SEQ ID NO:16.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:17;
- 10 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:17 from nucleotide 24 to nucleotide 1109;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:17 from nucleotide 1050 to nucleotide 1109;
- 15 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ya1_1 deposited with the ATCC under accession number 98599;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ya1_1 deposited with the ATCC under accession number 98599;
- 20 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ya1_1 deposited with the ATCC under accession number 98599;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ya1_1 deposited with the ATCC under accession number 98599;
- 25 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:18;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:18 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:18;
- 30 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:17 from nucleotide 24 to nucleotide 1109; the nucleotide sequence of SEQ ID NO:17 from nucleotide 1050 to nucleotide 1109; the nucleotide sequence of the full-length protein coding sequence of clone ya1_1 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone ya1_1 deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by 10 the cDNA insert of clone ya1_1 deposited with the ATCC under accession number 98599.

In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:18 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:18, or a 15 polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:18 having biological activity, the fragment comprising the amino acid sequence from amino acid 176 to amino acid 185 of SEQ ID NO:18.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:17.

20 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 25 consisting of:

(aa) SEQ ID NO:17, but excluding the poly(A) tail at the 3' end of SEQ ID NO:17; and

(ab) the nucleotide sequence of the cDNA insert of clone ya1_1 deposited with the ATCC under accession number 98599; 30 and

(ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

- (b) a process comprising the steps of:
- (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- 5 (ba) SEQ ID NO:17, but excluding the poly(A) tail at the 3' end of SEQ ID NO:17; and
- (bb) the nucleotide sequence of the cDNA insert of clone ya1_1 deposited with the ATCC under accession number 98599;
- 10 and
- (ii) hybridizing said primer(s) to human DNA;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a

15 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:17, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:17 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:17 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:17. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence

20 corresponding to the cDNA sequence of SEQ ID NO:17 from nucleotide 24 to nucleotide 1109, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:17 from nucleotide 24 to nucleotide 1109, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:17 from nucleotide 24 to nucleotide 1109. Also preferably the polynucleotide isolated according to the above

25 process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:17 from nucleotide 1050 to nucleotide 1109, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:17 from nucleotide 1050 to nucleotide 1109, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:17 from nucleotide 1050 to nucleotide 1109.

30 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:18;

- (b) fragments of the amino acid sequence of SEQ ID NO:18 comprising eight consecutive amino acids of SEQ ID NO:18; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone ya1_1 deposited with the ATCC under accession number 98599;
- 5 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:18. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:18 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino
- 10 acids of SEQ ID NO:18, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:18 having biological activity, the fragment comprising the amino acid sequence from amino acid 176 to amino acid 185 of SEQ ID NO:18.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 15 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:19;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:19 from nucleotide 27 to nucleotide 734;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:19 from nucleotide 270 to nucleotide 734;
- 20 (d) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:19 from nucleotide 85 to nucleotide 1604;
- (e) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb8_1 deposited with the ATCC under accession number 98599;
- 25 (f) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb8_1 deposited with the ATCC under accession number 98599;
- (g) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb8_1 deposited with the ATCC under accession number 98599;
- 30 (h) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb8_1 deposited with the ATCC under accession number 98599;

- (i) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:20;
- 5 (j) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:20 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:20;
- (k) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(h) above;
- 10 (l) a polynucleotide which encodes a species homologue of the protein of (i) or (j) above ; and
- (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(j).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:19 from nucleotide 27 to nucleotide 734; the nucleotide sequence of SEQ ID NO:19 from nucleotide 270 to nucleotide 734; the nucleotide sequence of SEQ ID NO:19 from nucleotide 85 to nucleotide 1604; the nucleotide sequence of the full-length protein coding sequence of clone yb8_1 deposited with the ATCC under accession number 98599; or the nucleotide sequence of a mature protein coding sequence of clone yb8_1 deposited with the ATCC under accession number 98599. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yb8_1 deposited with the ATCC under accession number 98599. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:20 from amino acid 70 to amino acid 236. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:20 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:20, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:20 having biological activity, the fragment comprising the amino acid sequence from amino acid 113 to amino acid 122 of SEQ ID NO:20.
- 30 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:19.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:19, but excluding the poly(A) tail at the 3' end of SEQ ID NO:19; and

(ab) the nucleotide sequence of the cDNA insert of clone yb8_1 deposited with the ATCC under accession number 98599; and

10 (ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:19, but excluding the poly(A) tail at the 3' end of SEQ ID NO:19; and

20 (bb) the nucleotide sequence of the cDNA insert of clone yb8_1 deposited with the ATCC under accession number 98599; and

(ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

25 (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:19, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:19 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:19, but excluding the poly(A) tail at the 3' end of SEQ ID NO:19. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:19 from nucleotide 27 to nucleotide 734, and extending contiguously from a nucleotide sequence corresponding to the 5' end

of said sequence of SEQ ID NO:19 from nucleotide 27 to nucleotide 734, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:19 from nucleotide 27 to nucleotide 734. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID 5 NO:19 from nucleotide 270 to nucleotide 734, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:19 from nucleotide 270 to nucleotide 734, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:19 from nucleotide 270 to nucleotide 734. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide 10 sequence corresponding to the cDNA sequence of SEQ ID NO:19 from nucleotide 85 to nucleotide 1604, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:19 from nucleotide 85 to nucleotide 1604, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:19 from nucleotide 85 to nucleotide 1604.

15 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:20;
 - (b) the amino acid sequence of SEQ ID NO:20 from amino acid 70 to 20 amino acid 236;
 - (c) fragments of the amino acid sequence of SEQ ID NO:20 comprising eight consecutive amino acids of SEQ ID NO:20; and
 - (d) the amino acid sequence encoded by the cDNA insert of clone yb8_1 deposited with the ATCC under accession number 98599;
- 25 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:20 or the amino acid sequence of SEQ ID NO:20 from amino acid 70 to amino acid 236. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:20 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:20, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:20 having biological activity, the fragment comprising the amino acid sequence from amino acid 113 to amino acid 122 of SEQ ID NO:20.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:21;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:21 from nucleotide 469 to nucleotide 609;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:21 from nucleotide 574 to nucleotide 609;
- 10 (d) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:21 from nucleotide 214 to nucleotide 369;
- (e) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone am856_3 deposited with the ATCC under accession number 98600;
- 15 (f) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone am856_3 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone am856_3 deposited with the ATCC under accession number 98600;
- 20 (h) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone am856_3 deposited with the ATCC under accession number 98600;
- (i) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:22;
- 25 (j) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:22 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:22;
- (k) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(h) above;
- (l) a polynucleotide which encodes a species homologue of the protein of (i) or (j) above ; and
- 30 (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(j).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:21 from nucleotide 469 to nucleotide 609; the nucleotide sequence of SEQ ID NO:21 from nucleotide 574 to nucleotide 609; the nucleotide sequence of SEQ ID NO:21 from nucleotide 214 to nucleotide 369; the nucleotide sequence of the full-length protein coding sequence of clone am856_3 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone am856_3 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone am856_3 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:22 from amino acid 1 to amino acid 38. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:22 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:22, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:22 having biological activity, the fragment comprising the amino acid sequence from amino acid 18 to amino acid 27 of SEQ ID NO:22.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:21.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6XSSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:21, but excluding the poly(A) tail at the 3' end of SEQ ID NO:21; and
 - (ab) the nucleotide sequence of the cDNA insert of clone am856_3 deposited with the ATCC under accession number 98600;
 - and
 - (ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:21, but excluding the poly(A) tail at the 3' end of SEQ ID NO:21; and

10 (bb) the nucleotide sequence of the cDNA insert of clone am856_3 deposited with the ATCC under accession number 98600; and

(ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:21, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:21 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:21 , but 20 excluding the poly(A) tail at the 3' end of SEQ ID NO:21. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:21 from nucleotide 469 to nucleotide 609, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:21 from nucleotide 469 to nucleotide 609, to a nucleotide 25 sequence corresponding to the 3' end of said sequence of SEQ ID NO:21 from nucleotide 469 to nucleotide 609. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:21 from nucleotide 574 to nucleotide 609, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:21 from 30 nucleotide 574 to nucleotide 609, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:21 from nucleotide 574 to nucleotide 609. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:21 from nucleotide 214 to

nucleotide 369, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:21 from nucleotide 214 to nucleotide 369, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:21 from nucleotide 214 to nucleotide 369.

5 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:22;
 - (b) the amino acid sequence of SEQ ID NO:22 from amino acid 1 to
10 amino acid 38;
 - (c) fragments of the amino acid sequence of SEQ ID NO:22 comprising eight consecutive amino acids of SEQ ID NO:22; and
 - (d) the amino acid sequence encoded by the cDNA insert of clone am856_3 deposited with the ATCC under accession number 98600;
- 15 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:22 or the amino acid sequence of SEQ ID NO:22 from amino acid 1 to amino acid 38. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:22 having biological activity, the fragment preferably comprising
20 eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:22, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:22 having biological activity, the fragment comprising the amino acid sequence from amino acid 18 to amino acid 27 of SEQ ID NO:22.

In one embodiment, the present invention provides a composition comprising an
25 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:23;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:23 from nucleotide 442 to nucleotide 735;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:23 from nucleotide 520 to nucleotide 735;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone am996_12 deposited with the ATCC under accession number 98600;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone am996_12 deposited with the ATCC under accession number 98600;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone am996_12 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone am996_12 deposited with the ATCC under accession number 98600;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:24;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:24 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:24;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:23 from nucleotide 442 to nucleotide 735; the nucleotide sequence of SEQ ID NO:23 from nucleotide 520 to nucleotide 735; the nucleotide sequence of the full-length protein coding sequence of clone am996_12 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone am996_12 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone am996_12 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:24 from amino acid 1 to amino acid 90. In further preferred embodiments, the present

invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:24 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:24, or a polynucleotide encoding a protein comprising a fragment of 5 the amino acid sequence of SEQ ID NO:24 having biological activity, the fragment comprising the amino acid sequence from amino acid 44 to amino acid 53 of SEQ ID NO:24.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:23.

1.0 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 15 consisting of:

(aa) SEQ ID NO:23, but excluding the poly(A) tail at the 3' end of SEQ ID NO:23; and

(ab) the nucleotide sequence of the cDNA insert of clone am996_12 deposited with the ATCC under accession number 20 98600; and

(ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the 25 probe(s);

and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:23, but excluding the poly(A) tail at the 30 3' end of SEQ ID NO:23; and

(bb) the nucleotide sequence of the cDNA insert of clone am996_12 deposited with the ATCC under accession number 98600; and

- (ii) hybridizing said primer(s) to human DNA;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:23, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:23 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:23, but excluding the poly(A) tail at the 3' end of SEQ ID NO:23. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:23 from nucleotide 442 to nucleotide 735, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:23 from nucleotide 442 to nucleotide 735, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:23 from nucleotide 442 to nucleotide 735. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:23 from nucleotide 520 to nucleotide 735, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:23 from nucleotide 520 to nucleotide 735, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:23 from nucleotide 520 to nucleotide 735.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:24;
- (b) the amino acid sequence of SEQ ID NO:24 from amino acid 1 to amino acid 90;
- (c) fragments of the amino acid sequence of SEQ ID NO:24 comprising eight consecutive amino acids of SEQ ID NO:24; and
- (d) the amino acid sequence encoded by the cDNA insert of clone am996_12 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:24 or the amino acid sequence of SEQ ID NO:24 from amino acid 1 to amino acid 90. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid

sequence of SEQ ID NO:24 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:24, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:24 having biological activity, the fragment comprising the amino acid sequence from 5 amino acid 44 to amino acid 53 of SEQ ID NO:24.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:25;
- 10 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:25 from nucleotide 127 to nucleotide 240;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone cc69_1 deposited with the ATCC under accession number 98600;
- 15 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone cc69_1 deposited with the ATCC under accession number 98600;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone cc69_1 deposited with the ATCC under accession number 98600;
- 20 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone cc69_1 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:26;
- 25 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:26 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:26;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- 30 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:25 from nucleotide 127 to nucleotide 240; the nucleotide sequence of the full-length protein coding sequence of clone cc69_1 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone 5 cc69_1 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone cc69_1 deposited with the ATCC under accession number 98600.

In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:26 10 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:26, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:26 having biological activity, the fragment comprising the amino acid sequence from amino acid 14 to amino acid 23 of SEQ ID NO:26.

15 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:25.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - 20 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:25, but excluding the poly(A) tail at the 3' end of SEQ ID NO:25; and
 - (ab) the nucleotide sequence of the cDNA insert of clone cc69_1 deposited with the ATCC under accession number 98600; and
 - (ii) hybridizing said probe(s) to human DNA; and
 - (iii) isolating the DNA polynucleotide detected with the 25 probe(s);
- and
- (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:25, but excluding the poly(A) tail at the 3' end of SEQ ID NO:25; and

(bb) the nucleotide sequence of the cDNA insert of clone cc69_1 deposited with the ATCC under accession number 98600; and

10 (ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:25, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 15 ID NO:25 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:25, but excluding the poly(A) tail at the 3' end of SEQ ID NO:25. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:25 from nucleotide 127 to nucleotide 240, and extending contiguously from a nucleotide sequence corresponding to the 5' end 20 of said sequence of SEQ ID NO:25 from nucleotide 127 to nucleotide 240, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:25 from nucleotide 127 to nucleotide 240.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 25 group consisting of:

(a) the amino acid sequence of SEQ ID NO:26;

(b) fragments of the amino acid sequence of SEQ ID NO:26 comprising eight consecutive amino acids of SEQ ID NO:26; and

30 (c) the amino acid sequence encoded by the cDNA insert of clone cc69_1 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:26. In further preferred embodiments, the present invention provides a protein comprising a fragment of the

amino acid sequence of SEQ ID NO:26 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:26, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:26 having biological activity, the fragment comprising the amino acid sequence from amino acid 14 to amino acid 23 of SEQ ID NO:26.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:27;
- 10 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:27 from nucleotide 156 to nucleotide 413;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:27 from nucleotide 198 to nucleotide 413;
- 15 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone cc162_1 deposited with the ATCC under accession number 98600;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone cc162_1 deposited with the ATCC under accession number 98600;
- 20 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone cc162_1 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone cc162_1 deposited with the ATCC under accession number 98600;
- 25 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:28;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:28 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:28;
- 30 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:27 from nucleotide 156 to nucleotide 413; the nucleotide sequence of SEQ ID NO:27 from nucleotide 198 to nucleotide 413; the nucleotide sequence of the full-length protein coding sequence of clone cc162_1 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone cc162_1 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone cc162_1 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:28 from amino acid 1 to amino acid 66. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:28 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:28, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:28 having biological activity, the fragment comprising the amino acid sequence from amino acid 38 to amino acid 47 of SEQ ID NO:28.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:27.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:27, but excluding the poly(A) tail at the 3' end of SEQ ID NO:27; and

(ab) the nucleotide sequence of the cDNA insert of clone cc162_1 deposited with the ATCC under accession number 98600; and

- (ii) hybridizing said probe(s) to human DNA; and
- (iii) isolating the DNA polynucleotide detected with the probe(s);

and

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- (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

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(ba) SEQ ID NO:27, but excluding the poly(A) tail at the 3' end of SEQ ID NO:27; and

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(bb) the nucleotide sequence of the cDNA insert of clone cc162_1 deposited with the ATCC under accession number 98600; and

(ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:27, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:27 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:27, but excluding the poly(A) tail at the 3' end of SEQ ID NO:27. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:27 from nucleotide 156 to nucleotide 413, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:27 from nucleotide 156 to nucleotide 413, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:27 from nucleotide 156 to nucleotide 413. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:27 from nucleotide 198 to nucleotide 413, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:27 from nucleotide 198 to nucleotide 413, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:27 from nucleotide 198 to nucleotide 413.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:28;
- 5 (b) the amino acid sequence of SEQ ID NO:28 from amino acid 1 to amino acid 66;
- (c) fragments of the amino acid sequence of SEQ ID NO:28 comprising eight consecutive amino acids of SEQ ID NO:28; and
- 10 (d) the amino acid sequence encoded by the cDNA insert of clone cc162_1 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:28 or the amino acid sequence of SEQ ID NO:28 from amino acid 1 to amino acid 66. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:28 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:28, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:28 having biological activity, the fragment comprising the amino acid sequence from amino acid 38 to amino acid 47 of SEQ ID NO:28.

20 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:29;
- 25 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:29 from nucleotide 180 to nucleotide 737;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:29 from nucleotide 240 to nucleotide 737;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone if87_1 deposited with the ATCC under accession number 98600;
- 30 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone if87_1 deposited with the ATCC under accession number 98600;

- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone if87_1 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone if87_1 deposited with the ATCC under accession number 98600;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:30;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:30 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:30;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:29 from nucleotide 180 to nucleotide 737; the nucleotide sequence of SEQ ID NO:29 from nucleotide 240 to nucleotide 737; the nucleotide sequence of the full-length protein coding sequence of clone if87_1 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone if87_1 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone if87_1 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:30 from amino acid 1 to amino acid 88. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:30 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:30, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:30 having biological activity, the fragment comprising the amino acid sequence from amino acid 88 to amino acid 97 of SEQ ID NO:30.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:29.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

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(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

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(aa) SEQ ID NO:29, but excluding the poly(A) tail at the 3' end of SEQ ID NO:29; and

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(ab) the nucleotide sequence of the cDNA insert of clone if87_1 deposited with the ATCC under accession number 98600; and

(ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

(b) a process comprising the steps of:

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(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:29, but excluding the poly(A) tail at the 3' end of SEQ ID NO:29; and

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(bb) the nucleotide sequence of the cDNA insert of clone if87_1 deposited with the ATCC under accession number 98600; and

(ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

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Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:29, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:29 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:29, but

excluding the poly(A) tail at the 3' end of SEQ ID NO:29. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:29 from nucleotide 180 to nucleotide 737, and extending contiguously from a nucleotide sequence corresponding to the 5' end 5 of said sequence of SEQ ID NO:29 from nucleotide 180 to nucleotide 737, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:29 from nucleotide 180 to nucleotide 737. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:29 from nucleotide 240 to nucleotide 737, and extending contiguously from a 10 nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:29 from nucleotide 240 to nucleotide 737, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:29 from nucleotide 240 to nucleotide 737.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 15 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:30;
- (b) the amino acid sequence of SEQ ID NO:30 from amino acid 1 to amino acid 88;
- (c) fragments of the amino acid sequence of SEQ ID NO:30 comprising eight consecutive amino acids of SEQ ID NO:30; and
- (d) the amino acid sequence encoded by the cDNA insert of clone if87_1 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:30 or the amino acid sequence 20 of SEQ ID NO:30 from amino acid 1 to amino acid 88. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:30 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:30, or a protein comprising a fragment of the amino acid sequence of SEQ ID 25 NO:30 having biological activity, the fragment comprising the amino acid sequence from amino acid 88 to amino acid 97 of SEQ ID NO:30.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:31;
 - (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:31 from nucleotide 2294 to nucleotide 2845;
 - 5 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:31 from nucleotide 2387 to nucleotide 2845;
 - (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nn103_4 deposited with the ATCC under accession number 98600;
 - 10 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nn103_4 deposited with the ATCC under accession number 98600;
 - (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nn103_4 deposited with the ATCC under accession number 98600;
 - 15 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nn103_4 deposited with the ATCC under accession number 98600;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:32;
 - 20 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:32 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:32;
 - (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - 25 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
 - (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:31 from nucleotide 2294 to nucleotide 2845; the nucleotide sequence of SEQ ID NO:31 from nucleotide 2387 to nucleotide 2845; the nucleotide sequence of the full-length protein coding sequence of clone nn103_4 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone

nn103_4 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nn103_4 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a 5 polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:32 from amino acid 12 to amino acid 137. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:32 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino 10 acids of SEQ ID NO:32, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:32 having biological activity, the fragment comprising the amino acid sequence from amino acid 87 to amino acid 96 of SEQ ID NO:32.

Other embodiments provide the gene corresponding to the cDNA sequence of 15 SEQ ID NO:31.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize 20 in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:31, but excluding the poly(A) tail at the 3' end of SEQ ID NO:31; and
 - (ab) the nucleotide sequence of the cDNA insert of clone nn103_4 deposited with the ATCC under accession number 98600; and
 - (ii) hybridizing said probe(s) to human DNA; and
 - (iii) isolating the DNA polynucleotide detected with the probe(s);
- 25 30 and
 - (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:31, but excluding the poly(A) tail at the

3' end of SEQ ID NO:31; and

(bb) the nucleotide sequence of the cDNA insert of clone nn103_4 deposited with the ATCC under accession number 98600; and

10 (ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:31, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ

15 ID NO:31 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:31, but excluding the poly(A) tail at the 3' end of SEQ ID NO:31. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:31 from nucleotide 2294 to nucleotide 2845, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:31 from nucleotide 2294 to nucleotide 2845, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:31 from nucleotide 2294 to nucleotide 2845. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:31 from nucleotide 2387 to nucleotide 2845, and extending 20 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:31 from nucleotide 2387 to nucleotide 2845, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:31 from nucleotide 2387 to nucleotide 2845.

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In other embodiments, the present invention provides a composition comprising 30 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:32;

(b) the amino acid sequence of SEQ ID NO:32 from amino acid 12 to amino acid 137;

(c) fragments of the amino acid sequence of SEQ ID NO:32 comprising eight consecutive amino acids of SEQ ID NO:32; and

5 (d) the amino acid sequence encoded by the cDNA insert of clone nn103_4 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:32 or the amino acid sequence of SEQ ID NO:32 from amino acid 12 to amino acid 137. In further preferred 10 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:32 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:32, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:32 having biological activity, the fragment comprising the amino acid 15 sequence from amino acid 87 to amino acid 96 of SEQ ID NO:32.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

(a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:33;

20 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:33 from nucleotide 1280 to nucleotide 1504;

(c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone np206_8 deposited with the ATCC under accession number 98600;

25 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone np206_8 deposited with the ATCC under accession number 98600;

(e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone np206_8 deposited with the ATCC under 30 accession number 98600;

(f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone np206_8 deposited with the ATCC under accession number 98600;

- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:34;
- 5 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:34 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:34;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- 10 (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:33 from nucleotide 1280 to nucleotide 1504; the nucleotide sequence of the full-length protein coding sequence of clone np206_8 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone np206_8 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone np206_8 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a 20 polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:34 from amino acid 1 to amino acid 26. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:34 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:34, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:34 having biological activity, the fragment comprising the amino acid sequence from amino acid 32 to amino acid 41 of SEQ ID NO:34.

Other embodiments provide the gene corresponding to the cDNA sequence of 30 SEQ ID NO:33.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:33, but excluding the poly(A) tail at the 3' end of SEQ ID NO:33; and

(ab) the nucleotide sequence of the cDNA insert of clone np206_8 deposited with the ATCC under accession number 98600; and

10 (ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:33, but excluding the poly(A) tail at the 3' end of SEQ ID NO:33; and

20 (bb) the nucleotide sequence of the cDNA insert of clone np206_8 deposited with the ATCC under accession number 98600; and

(ii) hybridizing said primer(s) to human DNA;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide product of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:33, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:33 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:33 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:33. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:33 from nucleotide 1280 to nucleotide 1504, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:33 from nucleotide 1280 to nucleotide 1504,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:33 from nucleotide 1280 to nucleotide 1504.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 5 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:34;
- (b) the amino acid sequence of SEQ ID NO:34 from amino acid 1 to amino acid 26;
- (c) fragments of the amino acid sequence of SEQ ID NO:34 comprising 10 eight consecutive amino acids of SEQ ID NO:34; and
- (d) the amino acid sequence encoded by the cDNA insert of clone np206_8 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:34 or the amino acid sequence 15 of SEQ ID NO:34 from amino acid 1 to amino acid 26. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:34 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:34, or a protein comprising a fragment of the amino acid sequence of SEQ ID 20 NO:34 having biological activity, the fragment comprising the amino acid sequence from amino acid 32 to amino acid 41 of SEQ ID NO:34.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 25 NO:35;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:35 from nucleotide 133 to nucleotide 432;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nt746_4 deposited with the ATCC under 30 accession number 98600;
- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nt746_4 deposited with the ATCC under accession number 98600;

- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nt746_4 deposited with the ATCC under accession number 98600;
- (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nt746_4 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:36;
- (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:36 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:36;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:35 from nucleotide 133 to nucleotide 432; the nucleotide sequence of the full-length protein coding sequence of clone nt746_4 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone nt746_4 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nt746_4 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:36 from amino acid 1 to amino acid 70. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:36 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:36, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:36 having biological activity, the fragment comprising the amino acid sequence from amino acid 45 to amino acid 54 of SEQ ID NO:36.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:35.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 5 (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:35, but excluding the poly(A) tail at the 10 3' end of SEQ ID NO:35; and
 - (ab) the nucleotide sequence of the cDNA insert of clone nt746_4 deposited with the ATCC under accession number 98600; and
 - (ii) hybridizing said probe(s) to human DNA; and
 - (iii) isolating the DNA polynucleotide detected with the 15 probe(s);
- and
- (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (ba) SEQ ID NO:35, but excluding the poly(A) tail at the 20 3' end of SEQ ID NO:35; and
 - (bb) the nucleotide sequence of the cDNA insert of clone nt746_4 deposited with the ATCC under accession number 98600; and
 - (ii) hybridizing said primer(s) to human DNA;
 - (iii) amplifying human DNA sequences; and
 - (iv) isolating the polynucleotide product of step (b)(iii). 25
- 30 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:35, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:35 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:35, but

excluding the poly(A) tail at the 3' end of SEQ ID NO:35. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:35 from nucleotide 133 to nucleotide 432, and extending contiguously from a nucleotide sequence corresponding to the 5' end 5 of said sequence of SEQ ID NO:35 from nucleotide 133 to nucleotide 432, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:35 from nucleotide 133 to nucleotide 432.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 10 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:36;
- (b) the amino acid sequence of SEQ ID NO:36 from amino acid 1 to amino acid 70;
- (c) fragments of the amino acid sequence of SEQ ID NO:36 comprising 15 eight consecutive amino acids of SEQ ID NO:36; and
- (d) the amino acid sequence encoded by the cDNA insert of clone nt746_4 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:36 or the amino acid sequence 20 of SEQ ID NO:36 from amino acid 1 to amino acid 70. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:36 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:36, or a protein comprising a fragment of the amino acid sequence of SEQ ID 25 NO:36 having biological activity, the fragment comprising the amino acid sequence from amino acid 45 to amino acid 54 of SEQ ID NO:36.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:37;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:37 from nucleotide 31 to nucleotide 201;

- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pe286_1 deposited with the ATCC under accession number 98600;
- 5 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pe286_1 deposited with the ATCC under accession number 98600;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pe286_1 deposited with the ATCC under accession number 98600;
- 10 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pe286_1 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:38;
- 15 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:38 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:38;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- 20 (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:37 from nucleotide 31 to nucleotide 201; the nucleotide sequence of the full-length protein coding sequence of clone pe286_1 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone pe286_1 deposited with the ATCC under accession number 98600. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pe286_1 deposited with the ATCC under accession number 98600. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:38 from amino acid 1 to amino acid 49. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the

amino acid sequence of SEQ ID NO:38 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:38, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:38 having biological activity, the fragment 5 comprising the amino acid sequence from amino acid 23 to amino acid 32 of SEQ ID NO:38.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:37.

Further embodiments of the invention provide isolated polynucleotides produced 10 according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

15 (aa) SEQ ID NO:37, but excluding the poly(A) tail at the 3' end of SEQ ID NO:37; and

(ab) the nucleotide sequence of the cDNA insert of clone pe286_1 deposited with the ATCC under accession number 98600; and

20 (ii) hybridizing said probe(s) to human DNA; and

(iii) isolating the DNA polynucleotide detected with the probe(s);

and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:37, but excluding the poly(A) tail at the 3' end of SEQ ID NO:37; and

30 (bb) the nucleotide sequence of the cDNA insert of clone pe286_1 deposited with the ATCC under accession number 98600; and

(ii) hybridizing said primer(s) to human DNA;

- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:37, and

5 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:37 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:37, but excluding the poly(A) tail at the 3' end of SEQ ID NO:37. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:37 from nucleotide 31 to nucleotide

10 201, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:37 from nucleotide 31 to nucleotide 201, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:37 from nucleotide 31 to nucleotide 201.

In other embodiments, the present invention provides a composition comprising

15 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:38;
- (b) the amino acid sequence of SEQ ID NO:38 from amino acid 1 to amino acid 49;
- 20 (c) fragments of the amino acid sequence of SEQ ID NO:38 comprising eight consecutive amino acids of SEQ ID NO:38; and
- (d) the amino acid sequence encoded by the cDNA insert of clone pe286_1 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such

25 protein comprises the amino acid sequence of SEQ ID NO:38 or the amino acid sequence of SEQ ID NO:38 from amino acid 1 to amino acid 49. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:38 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ

30 ID NO:38, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:38 having biological activity, the fragment comprising the amino acid sequence from amino acid 23 to amino acid 32 of SEQ ID NO:38.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:39;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:39 from nucleotide 843 to nucleotide 1004;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb7_1 deposited with the ATCC under accession number 98600;
- 10 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb7_1 deposited with the ATCC under accession number 98600;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb7_1 deposited with the ATCC under accession number 98600;
- 15 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb7_1 deposited with the ATCC under accession number 98600;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:40;
- 20 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:40 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:40;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- 25 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:39 from nucleotide 843 to nucleotide 1004; the nucleotide sequence of the full-length protein coding sequence of clone yb7_1 deposited with the ATCC under accession number 98600; or the nucleotide sequence of a mature protein coding sequence of clone yb7_1 deposited with the ATCC under accession number 98600. In other preferred

embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yb7_1 deposited with the ATCC under accession number 98600.

In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:40 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:40, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:40 having biological activity, the fragment comprising the amino acid sequence from amino acid 22 to amino acid 31 of SEQ ID NO:40.

10 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:39.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

15 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:39, but excluding the poly(A) tail at the 3' end of SEQ ID NO:39; and

20 (ab) the nucleotide sequence of the cDNA insert of clone yb7_1 deposited with the ATCC under accession number 98600; and

(ii) hybridizing said probe(s) to human DNA; and

25 (iii) isolating the DNA polynucleotide detected with the probe(s);

and

(b) a process comprising the steps of:

30 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:39, but excluding the poly(A) tail at the 3' end of SEQ ID NO:39; and

- (bb) the nucleotide sequence of the cDNA insert of clone
yb7_1 deposited with the ATCC under accession number 98600;
and
- (ii) hybridizing said primer(s) to human DNA;
5 (iii) amplifying human DNA sequences; and
(iv) isolating the polynucleotide product of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:39, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 10 ID NO:39 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:39, but excluding the poly(A) tail at the 3' end of SEQ ID NO:39. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:39 from nucleotide 843 to nucleotide 1004, and extending contiguously from a nucleotide sequence corresponding to the 5' end 15 of said sequence of SEQ ID NO:39 from nucleotide 843 to nucleotide 1004, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:39 from nucleotide 843 to nucleotide 1004.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 20 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:40;
(b) fragments of the amino acid sequence of SEQ ID NO:40 comprising eight consecutive amino acids of SEQ ID NO:40; and
(c) the amino acid sequence encoded by the cDNA insert of clone

25 yb7_1 deposited with the ATCC under accession number 98600;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:40. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:40 having biological activity, the fragment preferably 30 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:40, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:40 having biological activity, the fragment comprising the amino acid sequence from amino acid 22 to amino acid 31 of SEQ ID NO:40.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:41;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:41 from nucleotide 179 to nucleotide 4285;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone am728_60 deposited with the ATCC under accession number 98621;
- 10 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone am728_60 deposited with the ATCC under accession number 98621;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone am728_60 deposited with the ATCC under accession number 98621;
- 15 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone am728_60 deposited with the ATCC under accession number 98621;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:42;
- 20 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:42 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:42;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- 25 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:41 from nucleotide 179 to nucleotide 4285; the nucleotide sequence of the full-length protein coding sequence of clone am728_60 deposited with the ATCC under accession number 98621; or the nucleotide sequence of a mature protein coding sequence of clone am728_60 deposited with the ATCC under accession number 98621. In other preferred

embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone am728_60 deposited with the ATCC under accession number 98621. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of 5 SEQ ID NO:42 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:42, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:42 having biological activity, the fragment comprising the amino acid sequence from amino acid 679 to amino acid 688 of SEQ ID NO:42.

10 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:41.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:
15 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:41; and
(ab) the nucleotide sequence of the cDNA insert of clone
20 am728_60 deposited with the ATCC under accession number 98621;
(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
(iii) isolating the DNA polynucleotides detected with the probe(s);

25 and
(b) a process comprising the steps of:
(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
30 (ba) SEQ ID NO:41; and

(bb) the nucleotide sequence of the cDNA insert of clone am728_60 deposited with the ATCC under accession number 98621;

- 5 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
(iii) amplifying human DNA sequences; and
(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:41, and
10 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:41 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:41. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:41 from nucleotide 179 to nucleotide 4285, and extending contiguously from a nucleotide
15 sequence corresponding to the 5' end of said sequence of SEQ ID NO:41 from nucleotide 179 to nucleotide 4285, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:41 from nucleotide 179 to nucleotide 4285.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the
20 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:42;
(b) fragments of the amino acid sequence of SEQ ID NO:42, each fragment comprising eight consecutive amino acids of SEQ ID NO:42; and
(c) the amino acid sequence encoded by the cDNA insert of clone
25 am728_60 deposited with the ATCC under accession number 98621;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:42. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:42 having biological activity, the fragment preferably
30 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:42, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:42 having biological activity, the fragment comprising the amino acid sequence from amino acid 679 to amino acid 688 of SEQ ID NO:42.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:43;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:43 from nucleotide 108 to nucleotide 254;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:43 from nucleotide 225 to nucleotide 254;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bf377_1 deposited with the ATCC under accession number 98621;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bf377_1 deposited with the ATCC under accession number 98621;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bf377_1 deposited with the ATCC under accession number 98621;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bf377_1 deposited with the ATCC under accession number 98621;
- 20 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:44;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:44 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:44;
- 25 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 30 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:43 from nucleotide 108 to nucleotide 254; the nucleotide sequence of SEQ ID NO:43 from nucleotide 225 to nucleotide 254; the nucleotide sequence of the full-length protein

coding sequence of clone bf377_1 deposited with the ATCC under accession number 98621; or the nucleotide sequence of a mature protein coding sequence of clone bf377_1 deposited with the ATCC under accession number 98621. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by 5 the cDNA insert of clone bf377_1 deposited with the ATCC under accession number 98621. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:44 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:44, or 10 a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:44 having biological activity, the fragment comprising the amino acid sequence from amino acid 19 to amino acid 28 of SEQ ID NO:44.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:43.

15 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 20 consisting of:
 - (aa) SEQ ID NO:43, but excluding the poly(A) tail at the 3' end of SEQ ID NO:43; and
 - (ab) the nucleotide sequence of the cDNA insert of clone bf377_1 deposited with the ATCC under accession number 98621;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
 - (iii) isolating the DNA polynucleotides detected with the probe(s);

and

- (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:43, but excluding the poly(A) tail at the 3' end of SEQ ID NO:43; and

(bb) the nucleotide sequence of the cDNA insert of clone bf377_1 deposited with the ATCC under accession number 98621;

5 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a 10 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:43, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:43 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:43 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:43. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 15 corresponding to the cDNA sequence of SEQ ID NO:43 from nucleotide 108 to nucleotide 254, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:43 from nucleotide 108 to nucleotide 254, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:43 from nucleotide 108 to nucleotide 254. Also preferably the polynucleotide isolated according to the above 20 process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:43 from nucleotide 225 to nucleotide 254, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:43 from nucleotide 225 to nucleotide 254, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:43 from nucleotide 225 to nucleotide 254.

25 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:44;

(b) fragments of the amino acid sequence of SEQ ID NO:44, each

30 fragment comprising eight consecutive amino acids of SEQ ID NO:44; and

(c) the amino acid sequence encoded by the cDNA insert of clone

bf377_1 deposited with the ATCC under accession number 98621;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:44. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:44 having biological activity, the fragment preferably 5 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:44, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:44 having biological activity, the fragment comprising the amino acid sequence from amino acid 19 to amino acid 28 of SEQ ID NO:44.

In one embodiment, the present invention provides a composition comprising an 10 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:45;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:45 from nucleotide 426 to nucleotide 569;
- 15 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:45 from nucleotide 546 to nucleotide 569;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone cw354_1 deposited with the ATCC under accession number 98621;
- 20 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone cw354_1 deposited with the ATCC under accession number 98621;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone cw354_1 deposited with the ATCC under accession number 98621;
- 25 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone cw354_1 deposited with the ATCC under accession number 98621;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:46;
- 30 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:46 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:46;

- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 5 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:45 from nucleotide 426 to nucleotide 569; the nucleotide sequence of SEQ ID NO:45 from nucleotide 546 to nucleotide 569; the nucleotide sequence of the full-length protein 10 coding sequence of clone cw354_1 deposited with the ATCC under accession number 98621; or the nucleotide sequence of a mature protein coding sequence of clone cw354_1 deposited with the ATCC under accession number 98621. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone cw354_1 deposited with the ATCC under accession number 15 98621. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:46 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:46, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence 20 of SEQ ID NO:46 having biological activity, the fragment comprising the amino acid sequence from amino acid 19 to amino acid 28 of SEQ ID NO:46.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:45.

Further embodiments of the invention provide isolated polynucleotides produced 25 according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:45, but excluding the poly(A) tail at the 3' end of SEQ ID NO:45; and
 - (ab) the nucleotide sequence of the cDNA insert of clone cw354_1 deposited with the ATCC under accession number 98621;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

5 and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10 (ba) SEQ ID NO:45, but excluding the poly(A) tail at the 3' end of SEQ ID NO:45; and

(bb) the nucleotide sequence of the cDNA insert of clone cw354_1 deposited with the ATCC under accession number 98621;

15 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:45, and
20 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:45 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:45, but excluding the poly(A) tail at the 3' end of SEQ ID NO:45. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:45 from nucleotide 426 to nucleotide 569, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:45 from nucleotide 426 to nucleotide 569, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:45 from nucleotide 426 to nucleotide 569. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID
25 NO:45 from nucleotide 546 to nucleotide 569, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:45 from nucleotide 546 to nucleotide 569, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:45 from nucleotide 546 to nucleotide 569.
30

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:46;
- 5 (b) fragments of the amino acid sequence of SEQ ID NO:46, each fragment comprising eight consecutive amino acids of SEQ ID NO:46; and
- (c) the amino acid sequence encoded by the cDNA insert of clone cw354_1 deposited with the ATCC under accession number 98621;

the protein being substantially free from other mammalian proteins. Preferably such 10 protein comprises the amino acid sequence of SEQ ID NO:46. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:46 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:46, or a protein comprising a fragment of the amino acid sequence 15 of SEQ ID NO:46 having biological activity, the fragment comprising the amino acid sequence from amino acid 19 to amino acid 28 of SEQ ID NO:46.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 20 NO:47;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:47 from nucleotide 151 to nucleotide 891;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:47 from nucleotide 595 to nucleotide 891;
- 25 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nm134_4 deposited with the ATCC under accession number 98621;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nm134_4 deposited with the ATCC under accession number 98621;
- 30 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nm134_4 deposited with the ATCC under accession number 98621;

(g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nm134_4 deposited with the ATCC under accession number 98621;

(h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:48;

5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:48 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:48;

(j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
15 NO:47 from nucleotide 151 to nucleotide 891; the nucleotide sequence of SEQ ID NO:47 from nucleotide 595 to nucleotide 891; the nucleotide sequence of the full-length protein coding sequence of clone nm134_4 deposited with the ATCC under accession number 98621; or the nucleotide sequence of a mature protein coding sequence of clone nm134_4 deposited with the ATCC under accession number 98621. In other preferred
20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nm134_4 deposited with the ATCC under accession number 98621. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:48 from amino acid 104 to amino acid 163. In further preferred embodiments, the present
25 invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:48 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:48, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:48 having biological activity, the fragment
30 comprising the amino acid sequence from amino acid 118 to amino acid 127 of SEQ ID NO:48.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:47.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

5 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:47, but excluding the poly(A) tail at the 3' end of SEQ ID NO:47; and

10 (ab) the nucleotide sequence of the cDNA insert of clone nm134_4 deposited with the ATCC under accession number 98621;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

15 and

(b) a process comprising the steps of:

20 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:47, but excluding the poly(A) tail at the 3' end of SEQ ID NO:47; and

(bb) the nucleotide sequence of the cDNA insert of clone nm134_4 deposited with the ATCC under accession number 98621;

25 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:47, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:47 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:47, but excluding the poly(A) tail at the 3' end of SEQ ID NO:47. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence

corresponding to the cDNA sequence of SEQ ID NO:47 from nucleotide 151 to nucleotide 891, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:47 from nucleotide 151 to nucleotide 891, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:47 from nucleotide 5
151 to nucleotide 891. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:47 from nucleotide 595 to nucleotide 891, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:47 from nucleotide 595 to nucleotide 891, to a nucleotide sequence corresponding to the 3' end of
10 said sequence of SEQ ID NO:47 from nucleotide 595 to nucleotide 891.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:48;
- 15 (b) the amino acid sequence of SEQ ID NO:48 from amino acid 104 to amino acid 163;
- (c) fragments of the amino acid sequence of SEQ ID NO:48, each fragment comprising eight consecutive amino acids of SEQ ID NO:48; and
- (d) the amino acid sequence encoded by the cDNA insert of clone
20 nm134_4 deposited with the ATCC under accession number 98621;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:48 or the amino acid sequence of SEQ ID NO:48 from amino acid 104 to amino acid 163. In further preferred embodiments, the present invention provides a protein comprising a fragment of the
25 amino acid sequence of SEQ ID NO:48 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:48, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:48 having biological activity, the fragment comprising the amino acid sequence from amino acid 118 to amino acid 127 of SEQ ID NO:48.

30 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:49;

- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:49 from nucleotide 1909 to nucleotide 2127;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:49 from nucleotide 2074 to nucleotide 2127;
- 5 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb11_1 deposited with the ATCC under accession number 98621;
- 10 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb11_1 deposited with the ATCC under accession number 98621;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb11_1 deposited with the ATCC under accession number 98621;
- 15 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb11_1 deposited with the ATCC under accession number 98621;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:50;
- 20 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:50 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:50;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 25 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:49 from nucleotide 1909 to nucleotide 2127; the nucleotide sequence of SEQ ID NO:49 from nucleotide 2074 to nucleotide 2127; the nucleotide sequence of the full-length protein coding sequence of clone yb11_1 deposited with the ATCC under accession number 98621; or the nucleotide sequence of a mature protein coding sequence of clone yb11_1 deposited with the ATCC under accession number 98621. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by

the cDNA insert of clone *yb11_1* deposited with the ATCC under accession number 98621. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:50 having biological activity, the fragment preferably comprising eight (more 5 preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:50, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:50 having biological activity, the fragment comprising the amino acid sequence from amino acid 31 to amino acid 40 of SEQ ID NO:50.

Other embodiments provide the gene corresponding to the cDNA sequence of
10 SEQ ID NO:49.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:
15 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:49, but excluding the poly(A) tail at the 3' end of SEQ ID NO:49; and

20 (ab) the nucleotide sequence of the cDNA insert of clone *yb11_1* deposited with the ATCC under accession number 98621;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

25 and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

30 (ba) SEQ ID NO:49, but excluding the poly(A) tail at the 3' end of SEQ ID NO:49; and

(bb) the nucleotide sequence of the cDNA insert of clone *yb11_1* deposited with the ATCC under accession number 98621;

- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
 - (iii) amplifying human DNA sequences; and
 - (iv) isolating the polynucleotide products of step (b)(iii).
- 5 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:49, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:49 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:49, but excluding the poly(A) tail at the 3' end of SEQ ID NO:49. Also preferably the
- 10 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:49 from nucleotide 1909 to nucleotide 2127, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:49 from nucleotide 1909 to nucleotide 2127, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:49
- 15 from nucleotide 1909 to nucleotide 2127. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:49 from nucleotide 2074 to nucleotide 2127, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:49 from nucleotide 2074 to nucleotide 2127, to a nucleotide sequence
- 20 corresponding to the 3' end of said sequence of SEQ ID NO:49 from nucleotide 2074 to nucleotide 2127.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 25 (a) the amino acid sequence of SEQ ID NO:50;
- (b) fragments of the amino acid sequence of SEQ ID NO:50, each fragment comprising eight consecutive amino acids of SEQ ID NO:50; and
- (c) the amino acid sequence encoded by the cDNA insert of clone yb11_1 deposited with the ATCC under accession number 98621;
- 30 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:50. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:50 having biological activity, the fragment preferably

comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:50; or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:50 having biological activity, the fragment comprising the amino acid sequence from amino acid 31 to amino acid 40 of SEQ ID NO:50.

5 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:51;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:51 from nucleotide 1077 to nucleotide 1733;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:51 from nucleotide 1158 to nucleotide 1733;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yc2_1 deposited with the ATCC under accession number 98621;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yc2_1 deposited with the ATCC under accession number 98621;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yc2_1 deposited with the ATCC under accession number 98621;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yc2_1 deposited with the ATCC under accession number 98621;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:52;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:52 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:52;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and

(i) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:51 from nucleotide 1077 to nucleotide 1733; the nucleotide sequence of SEQ ID NO:51 from nucleotide 1158 to nucleotide 1733; the nucleotide sequence of the full-length protein coding sequence of clone yc2_1 deposited with the ATCC under accession number 98621; or the nucleotide sequence of a mature protein coding sequence of clone yc2_1 deposited with the ATCC under accession number 98621. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yc2_1 deposited with the ATCC under accession number 98621.

In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:52 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:52, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:52 having biological activity, the fragment comprising the amino acid sequence from amino acid 104 to amino acid 113 of SEQ ID NO:52.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:51.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:51, but excluding the poly(A) tail at the 3' end of SEQ ID NO:51; and

(ab) the nucleotide sequence of the cDNA insert of clone yc2_1 deposited with the ATCC under accession number 98621;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

- (b) a process comprising the steps of:
- (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- 5 (ba) SEQ ID NO:51, but excluding the poly(A) tail at the 3' end of SEQ ID NO:51; and
- (bb) the nucleotide sequence of the cDNA insert of clone yc2_1 deposited with the ATCC under accession number 98621;
- 10 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:51, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:51 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:51 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:51. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:51 from nucleotide 1077 to nucleotide 1733, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:51 from nucleotide 1077 to nucleotide 1733, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:51 from nucleotide 1077 to nucleotide 1733. Also preferably the polynucleotide isolated 20 according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:51 from nucleotide 1158 to nucleotide 1733, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:51 from nucleotide 1158 to nucleotide 1733, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:51 from nucleotide 1158 to 25 nucleotide 1733.

25 30

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:52;
- (b) fragments of the amino acid sequence of SEQ ID NO:52, each fragment comprising eight consecutive amino acids of SEQ ID NO:52; and
- (c) the amino acid sequence encoded by the cDNA insert of clone 5 yc2_1 deposited with the ATCC under accession number 98621;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:52. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:52 having biological activity, the fragment preferably 10 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:52, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:52 having biological activity, the fragment comprising the amino acid sequence from amino acid 104 to amino acid 113 of SEQ ID NO:52.

In one embodiment, the present invention provides a composition comprising an 15 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:53;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:53 from nucleotide 257 to nucleotide 622;
- (c) a polynucleotide comprising the nucleotide sequence of the full-20 length protein coding sequence of clone ff168_12 deposited with the ATCC under accession number 98623;
- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ff168_12 deposited with the ATCC under accession number 25 98623;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ff168_12 deposited with the ATCC under accession number 98623;
- (f) a polynucleotide encoding a mature protein encoded by the cDNA 30 insert of clone ff168_12 deposited with the ATCC under accession number 98623;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:54;

(h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:54 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:54;

5 (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;

(j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above; and

(k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

10 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:53 from nucleotide 257 to nucleotide 622; the nucleotide sequence of the full-length protein coding sequence of clone ff168_12 deposited with the ATCC under accession number 98623; or the nucleotide sequence of a mature protein coding sequence of clone ff168_12 deposited with the ATCC under accession number 98623. In other preferred
15 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone ff168_12 deposited with the ATCC under accession number 98623. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:54 having biological activity, the fragment preferably comprising eight (more
20 preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:54, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:54 having biological activity, the fragment comprising the amino acid sequence from amino acid 56 to amino acid 65 of SEQ ID NO:54.

Other embodiments provide the gene corresponding to the cDNA sequence of
25 SEQ ID NO:53.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

30 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:53; but excluding the poly(A) tail at the 3' end of SEQ ID NO:53; and

- (ab) the nucleotide sequence of the cDNA insert of clone ff168_12 deposited with the ATCC under accession number 98623;
- (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
- 5 (iii) isolating the DNA polynucleotides detected with the probe(s);
- and
- (b) a process comprising the steps of:
- 10 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- (ba) SEQ ID NO:53, but excluding the poly(A) tail at the 3' end of SEQ ID NO:53; and
- 15 (bb) the nucleotide sequence of the cDNA insert of clone ff168_12 deposited with the ATCC under accession number 98623;
- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).
- 20 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:53, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:53 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:53, but excluding the poly(A) tail at the 3' end of SEQ ID NO:53. Also preferably the
- 25 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:53 from nucleotide 257 to nucleotide 622, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:53 from nucleotide 257 to nucleotide 622, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:53 from nucleotide
- 30 257 to nucleotide 622.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:54;
- (b) fragments of the amino acid sequence of SEQ ID NO:54, each fragment comprising eight consecutive amino acids of SEQ ID NO:54; and
- (c) the amino acid sequence encoded by the cDNA insert of clone ff168_12 deposited with the ATCC under accession number 98623;
- 5 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:54. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:54 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:54, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:54 having biological activity, the fragment comprising the amino acid sequence from amino acid 56 to amino acid 65 of SEQ ID NO:54.
- 10

In one embodiment, the present invention provides a composition comprising an
15 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:55;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:55 from nucleotide 1323 to nucleotide 1829;
- 20 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:55 from nucleotide 1539 to nucleotide 1829;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ls9_1 deposited with the ATCC under accession number 98623;
- 25 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ls9_1 deposited with the ATCC under accession number 98623;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ls9_1 deposited with the ATCC under accession number 98623;
- 30 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ls9_1 deposited with the ATCC under accession number 98623;

- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:56;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:56 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:56;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:55 from nucleotide 1323 to nucleotide 1829; the nucleotide sequence of SEQ ID NO:55 from nucleotide 1539 to nucleotide 1829; the nucleotide sequence of the full-length 15 protein coding sequence of clone ls9_1 deposited with the ATCC under accession number 98623; or the nucleotide sequence of a mature protein coding sequence of clone ls9_1 deposited with the ATCC under accession number 98623. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone ls9_1 deposited with the ATCC under accession number 98623.
- 20 In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:56 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:56, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of 25 SEQ ID NO:56 having biological activity, the fragment comprising the amino acid sequence from amino acid 79 to amino acid 88 of SEQ ID NO:56.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:55.

Further embodiments of the invention provide isolated polynucleotides produced 30 according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:55, but excluding the poly(A) tail at the 3' end of SEQ ID NO:55; and

(ab) the nucleotide sequence of the cDNA insert of clone ls9_1 deposited with the ATCC under accession number 98623;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:55, but excluding the poly(A) tail at the 3' end of SEQ ID NO:55; and

20 (bb) the nucleotide sequence of the cDNA insert of clone ls9_1 deposited with the ATCC under accession number 98623;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:55, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:55 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:55, but excluding the poly(A) tail at the 3' end of SEQ ID NO:55. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:55 from nucleotide 1323 to nucleotide 1829, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:55 from nucleotide 1323 to nucleotide 1829,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:55 from nucleotide 1323 to nucleotide 1829. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:55 from nucleotide 1539 to nucleotide 1829, and extending 5 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:55 from nucleotide 1539 to nucleotide 1829, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:55 from nucleotide 1539 to nucleotide 1829.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:56;
- (b) fragments of the amino acid sequence of SEQ ID NO:56, each fragment comprising eight consecutive amino acids of SEQ ID NO:56; and
- 15 (c) the amino acid sequence encoded by the cDNA insert of clone ls9_1 deposited with the ATCC under accession number 98623;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:56. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 20 amino acid sequence of SEQ ID NO:56 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:56, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:56 having biological activity, the fragment comprising the amino acid sequence from amino acid 79 to amino acid 88 of SEQ ID NO:56.

25 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:57;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:57 from nucleotide 507 to nucleotide 722;
- 30 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:57 from nucleotide 615 to nucleotide 722;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone na1010_1 deposited with the ATCC under accession number 98623;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone na1010_1 deposited with the ATCC under accession number 98623;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone na1010_1 deposited with the ATCC under accession number 98623;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone na1010_1 deposited with the ATCC under accession number 98623;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:58;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:58 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:58;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:57 from nucleotide 507 to nucleotide 722; the nucleotide sequence of SEQ ID NO:57 from nucleotide 615 to nucleotide 722; the nucleotide sequence of the full-length protein coding sequence of clone na1010_1 deposited with the ATCC under accession number 98623; or the nucleotide sequence of a mature protein coding sequence of clone na1010_1 deposited with the ATCC under accession number 98623. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone na1010_1 deposited with the ATCC under accession number 98623. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:58 having biological activity, the fragment preferably comprising eight (more

preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:58, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:58 having biological activity, the fragment comprising the amino acid sequence from amino acid 31 to amino acid 40 of SEQ ID NO:58.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:57.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

10 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:57, but excluding the poly(A) tail at the 3' end of SEQ ID NO:57; and

15 (ab) the nucleotide sequence of the cDNA insert of clone na1010_1 deposited with the ATCC under accession number 98623;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

20 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:57, but excluding the poly(A) tail at the 3' end of SEQ ID NO:57; and

(bb) the nucleotide sequence of the cDNA insert of clone na1010_1 deposited with the ATCC under accession number 98623;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:57, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:57 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:57, but

5 excluding the poly(A) tail at the 3' end of SEQ ID NO:57. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:57 from nucleotide 507 to nucleotide 722, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:57 from nucleotide 507 to nucleotide 722, to a nucleotide

10 sequence corresponding to the 3' end of said sequence of SEQ ID NO:57 from nucleotide 507 to nucleotide 722. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:57 from nucleotide 615 to nucleotide 722, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:57 from

15 nucleotide 615 to nucleotide 722, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:57 from nucleotide 615 to nucleotide 722.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 20 (a) the amino acid sequence of SEQ ID NO:58;
- (b) fragments of the amino acid sequence of SEQ ID NO:58, each fragment comprising eight consecutive amino acids of SEQ ID NO:58; and
- (c) the amino acid sequence encoded by the cDNA insert of clone na1010_1 deposited with the ATCC under accession number 98623;
- 25 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:58. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:58 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino
- 30 acids of SEQ ID NO:58, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:58 having biological activity, the fragment comprising the amino acid sequence from amino acid 31 to amino acid 40 of SEQ ID NO:58.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:59;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:59 from nucleotide 673 to nucleotide 987;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:59 from nucleotide 868 to nucleotide 987;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nf87_1 deposited with the ATCC under accession number 98623;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nf87_1 deposited with the ATCC under accession number 98623;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nf87_1 deposited with the ATCC under accession number 98623;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nf87_1 deposited with the ATCC under accession number 98623;
- 20 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:60;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:60 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:60;
- 25 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

30 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:59 from nucleotide 673 to nucleotide 987; the nucleotide sequence of SEQ ID NO:59 from nucleotide 868 to nucleotide 987; the nucleotide sequence of the full-length protein

coding sequence of clone nf87_1 deposited with the ATCC under accession number 98623; or the nucleotide sequence of a mature protein coding sequence of clone nf87_1 deposited with the ATCC under accession number 98623. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert 5 of clone nf87_1 deposited with the ATCC under accession number 98623. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:60 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:60, or a polynucleotide 10 encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:60 having biological activity, the fragment comprising the amino acid sequence from amino acid 47 to amino acid 56 of SEQ ID NO:60.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:59.

15 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 20 consisting of:

(aa) SEQ ID NO:59, but excluding the poly(A) tail at the 3' end of SEQ ID NO:59; and

(ab) the nucleotide sequence of the cDNA insert of clone nf87_1 deposited with the ATCC under accession number 98623;

25 (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

30 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:59, but excluding the poly(A) tail at the 3' end of SEQ ID NO:59; and

(bb) the nucleotide sequence of the cDNA insert of clone nf87_1 deposited with the ATCC under accession number 98623;

5 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a 10 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:59, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:59 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:59 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:59. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 15 corresponding to the cDNA sequence of SEQ ID NO:59 from nucleotide 673 to nucleotide 987, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:59 from nucleotide 673 to nucleotide 987, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:59 from nucleotide 673 to nucleotide 987. Also preferably the polynucleotide isolated according to the above 20 process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:59 from nucleotide 868 to nucleotide 987, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:59 from nucleotide 868 to nucleotide 987, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:59 from nucleotide 868 to nucleotide 987.

25 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:60;

(b) fragments of the amino acid sequence of SEQ ID NO:60, each

30 fragment comprising eight consecutive amino acids of SEQ ID NO:60; and

(c) the amino acid sequence encoded by the cDNA insert of clone nf87_1 deposited with the ATCC under accession number 98623;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:60. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:60 having biological activity, the fragment preferably 5 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:60, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:60 having biological activity, the fragment comprising the amino acid sequence from amino acid 47 to amino acid 56 of SEQ ID NO:60.

In one embodiment, the present invention provides a composition comprising an 10 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:61;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:61 from nucleotide 57 to nucleotide 824;
- 15 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:61 from nucleotide 114 to nucleotide 824;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nh796_1 deposited with the ATCC under accession number 98623;
- 20 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nh796_1 deposited with the ATCC under accession number 98623;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nh796_1 deposited with the ATCC under accession number 98623;
- 25 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nh796_1 deposited with the ATCC under accession number 98623;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:62;
- 30 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:62 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:62;

- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 5 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:61 from nucleotide 57 to nucleotide 824; the nucleotide sequence of SEQ ID NO:61 from nucleotide 114 to nucleotide 824; the nucleotide sequence of the full-length protein coding sequence of clone nh796_1 deposited with the ATCC under accession number 98623; or the nucleotide sequence of a mature protein coding sequence of clone nh796_1 deposited with the ATCC under accession number 98623. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nh796_1 deposited with the ATCC under accession number 98623. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:62 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:62, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:62 having biological activity, the fragment comprising the amino acid sequence from amino acid 123 to amino acid 132 of SEQ ID NO:62.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:61.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:61, but excluding the poly(A) tail at the 3' end of SEQ ID NO:61; and
 - (ab) the nucleotide sequence of the cDNA insert of clone nh796_1 deposited with the ATCC under accession number 98623;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

5 and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10 (ba) SEQ ID NO:61, but excluding the poly(A) tail at the 3' end of SEQ ID NO:61; and

(bb) the nucleotide sequence of the cDNA insert of clone nh796_1 deposited with the ATCC under accession number 98623;

15 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:61, and
20 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:61 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:61, but excluding the poly(A) tail at the 3' end of SEQ ID NO:61. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:61 from nucleotide 57 to nucleotide 25 824, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:61 from nucleotide 57 to nucleotide 824, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:61 from nucleotide 57 to nucleotide 824. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID
30 NO:61 from nucleotide 114 to nucleotide 824, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:61 from nucleotide 114 to nucleotide 824, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:61 from nucleotide 114 to nucleotide 824.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:62;
- 5 (b) fragments of the amino acid sequence of SEQ ID NO:62, each fragment comprising eight consecutive amino acids of SEQ ID NO:62; and
- (c) the amino acid sequence encoded by the cDNA insert of clone nh796_1 deposited with the ATCC under accession number 98623;

the protein being substantially free from other mammalian proteins. Preferably such 10 protein comprises the amino acid sequence of SEQ ID NO:62. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:62 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:62, or a protein comprising a fragment of the amino acid sequence 15 of SEQ ID NO:62 having biological activity, the fragment comprising the amino acid sequence from amino acid 123 to amino acid 132 of SEQ ID NO:62.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 20 NO:63;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:63 from nucleotide 297 to nucleotide 542;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:63 from nucleotide 510 to nucleotide 542;
- 25 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nn229_1 deposited with the ATCC under accession number 98623;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nn229_1 deposited with the ATCC under accession number 30 98623;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nn229_1 deposited with the ATCC under accession number 98623;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nn229_1 deposited with the ATCC under accession number 98623;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:64;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:64 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:64;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
15 NO:63 from nucleotide 297 to nucleotide 542; the nucleotide sequence of SEQ ID NO:63 from nucleotide 510 to nucleotide 542; the nucleotide sequence of the full-length protein coding sequence of clone nn229_1 deposited with the ATCC under accession number 98623; or the nucleotide sequence of a mature protein coding sequence of clone nn229_1 deposited with the ATCC under accession number 98623. In other preferred
20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nn229_1 deposited with the ATCC under accession number 98623. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:64 having biological activity, the fragment preferably comprising eight (more
25 preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:64, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:64 having biological activity, the fragment comprising the amino acid sequence from amino acid 36 to amino acid 45 of SEQ ID NO:64.

Other embodiments provide the gene corresponding to the cDNA sequence of
30 SEQ ID NO:63.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:63, but excluding the poly(A) tail at the 3' end of SEQ ID NO:63; and

(ab) the nucleotide sequence of the cDNA insert of clone nn229_1 deposited with the ATCC under accession number 98623;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:63, but excluding the poly(A) tail at the 3' end of SEQ ID NO:63; and

20 (bb) the nucleotide sequence of the cDNA insert of clone nn229_1 deposited with the ATCC under accession number 98623;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:63, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:63 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:63, but excluding the poly(A) tail at the 3' end of SEQ ID NO:63. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:63 from nucleotide 297 to nucleotide 542, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:63 from nucleotide 297 to nucleotide 542, to a nucleotide

sequence corresponding to the 3' end of said sequence of SEQ ID NO:63 from nucleotide 297 to nucleotide 542. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:63 from nucleotide 510 to nucleotide 542, and extending contiguously from a 5 nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:63 from nucleotide 510 to nucleotide 542, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:63 from nucleotide 510 to nucleotide 542.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 10 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:64;
- (b) fragments of the amino acid sequence of SEQ ID NO:64, each fragment comprising eight consecutive amino acids of SEQ ID NO:64; and
- (c) the amino acid sequence encoded by the cDNA insert of clone 15 nn229_1 deposited with the ATCC under accession number 98623;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:64. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:64 having biological activity, the fragment preferably 20 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:64, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:64 having biological activity, the fragment comprising the amino acid sequence from amino acid 36 to amino acid 45 of SEQ ID NO:64.

In one embodiment, the present invention provides a composition comprising an 25 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:65;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:65 from nucleotide 547 to nucleotide 750;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:65 from nucleotide 601 to nucleotide 750;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone np156_1 deposited with the ATCC under accession number 98623;
- 5 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone np156_1 deposited with the ATCC under accession number 98623;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone np156_1 deposited with the ATCC under accession number 98623;
- 10 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone np156_1 deposited with the ATCC under accession number 98623;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:66;
- 15 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:66 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:66;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 20 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:65 from nucleotide 547 to nucleotide 750; the nucleotide sequence of SEQ ID NO:65 from nucleotide 601 to nucleotide 750; the nucleotide sequence of the full-length protein coding sequence of clone np156_1 deposited with the ATCC under accession number 98623; or the nucleotide sequence of a mature protein coding sequence of clone np156_1 deposited with the ATCC under accession number 98623. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone np156_1 deposited with the ATCC under accession number 98623. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:66 having biological activity, the fragment preferably comprising eight (more

preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:66, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:66 having biological activity, the fragment comprising the amino acid sequence from amino acid 29 to amino acid 38 of SEQ ID NO:66.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:65.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

10 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:65, but excluding the poly(A) tail at the 3' end of SEQ ID NO:65; and

15 (ab) the nucleotide sequence of the cDNA insert of clone np156_1 deposited with the ATCC under accession number 98623;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

20 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:65, but excluding the poly(A) tail at the 3' end of SEQ ID NO:65; and

(bb) the nucleotide sequence of the cDNA insert of clone np156_1 deposited with the ATCC under accession number 98623;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:65, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:65 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:65, but

5 excluding the poly(A) tail at the 3' end of SEQ ID NO:65. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:65 from nucleotide 547 to nucleotide 750, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:65 from nucleotide 547 to nucleotide 750, to a nucleotide

10 sequence corresponding to the 3' end of said sequence of SEQ ID NO:65 from nucleotide 547 to nucleotide 750. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:65 from nucleotide 601 to nucleotide 750, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:65 from

15 nucleotide 601 to nucleotide 750, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:65 from nucleotide 601 to nucleotide 750.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 20 (a) the amino acid sequence of SEQ ID NO:66;
- (b) fragments of the amino acid sequence of SEQ ID NO:66, each fragment comprising eight consecutive amino acids of SEQ ID NO:66; and
- (c) the amino acid sequence encoded by the cDNA insert of clone np156_1 deposited with the ATCC under accession number 98623;
- 25 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:66. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:66 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino
- 30 acids of SEQ ID NO:66, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:66 having biological activity, the fragment comprising the amino acid sequence from amino acid 29 to amino acid 38 of SEQ ID NO:66.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:67;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:67 from nucleotide 310 to nucleotide 459;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:67 from nucleotide 445 to nucleotide 459;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bg570_1 deposited with the ATCC under accession number 98629;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bg570_1 deposited with the ATCC under accession number 98629;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bg570_1 deposited with the ATCC under accession number 98629;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bg570_1 deposited with the ATCC under accession number 98629;
- 20 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:68;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:68 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:68;
- 25 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

30 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:67 from nucleotide 310 to nucleotide 459; the nucleotide sequence of SEQ ID NO:67 from nucleotide 445 to nucleotide 459; the nucleotide sequence of the full-length protein

coding sequence of clone bg570_1 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone bg570_1 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by 5 the cDNA insert of clone bg570_1 deposited with the ATCC under accession number 98629. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:68 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:68, or 10 a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:68 having biological activity, the fragment comprising the amino acid sequence from amino acid 20 to amino acid 29 of SEQ ID NO:68.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:67.

15 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 20 consisting of:
 - (aa) SEQ ID NO:67, but excluding the poly(A) tail at the 3' end of SEQ ID NO:67; and
 - (ab) the nucleotide sequence of the cDNA insert of clone bg570_1 deposited with the ATCC under accession number 98629;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
 - (iii) isolating the DNA polynucleotides detected with the probe(s);

and

- 30 (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:67, but excluding the poly(A) tail at the 3' end of SEQ ID NO:67; and

(bb) the nucleotide sequence of the cDNA insert of clone bg570_1 deposited with the ATCC under accession number 98629;

5 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a 10 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:67, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:67 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:67, but excluding the poly(A) tail at the 3' end of SEQ ID NO:67. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 15 corresponding to the cDNA sequence of SEQ ID NO:67 from nucleotide 310 to nucleotide 459, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:67 from nucleotide 310 to nucleotide 459, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:67 from nucleotide 310 to nucleotide 459. Also preferably the polynucleotide isolated according to the above 20 process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:67 from nucleotide 445 to nucleotide 459, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:67 from nucleotide 445 to nucleotide 459, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:67 from nucleotide 445 to nucleotide 459.

25 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:68;

(b) fragments of the amino acid sequence of SEQ ID NO:68, each

30 fragment comprising eight consecutive amino acids of SEQ ID NO:68; and

(c) the amino acid sequence encoded by the cDNA insert of clone bg570_1 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:68. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:68 having biological activity, the fragment preferably 5 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:68, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:68 having biological activity, the fragment comprising the amino acid sequence from amino acid 20 to amino acid 29 of SEQ ID NO:68.

In one embodiment, the present invention provides a composition comprising an 10 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:69;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:69 from nucleotide 90 to nucleotide 1019;
- 15 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:69 from nucleotide 243 to nucleotide 1019;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bi120_2 deposited with the ATCC under accession number 98629;
- 20 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bi120_2 deposited with the ATCC under accession number 98629;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bi120_2 deposited with the ATCC under accession number 98629;
- 25 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bi120_2 deposited with the ATCC under accession number 98629;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:70;
- 30 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:70 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:70;

- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g)-above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 5 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:69 from nucleotide 90 to nucleotide 1019; the nucleotide sequence of SEQ ID NO:69 from nucleotide 243 to nucleotide 1019; the nucleotide sequence of the full-length protein coding sequence of clone bi120_2 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone bi120_2 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bi120_2 deposited with the ATCC under accession number 98629.

10 15 In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:70 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:70, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:70 having biological activity, the fragment comprising the amino acid sequence from amino acid 149 to amino acid 158 of SEQ ID NO:70.

20 25 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:69.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - 30 (aa) SEQ ID NO:69, but excluding the poly(A) tail at the 3' end of SEQ ID NO:69; and
 - (ab) the nucleotide sequence of the cDNA insert of clone bi120_2 deposited with the ATCC under accession number 98629;

- (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
- (iii) isolating the DNA polynucleotides detected with the probe(s);

5 and

- (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (ba) SEQ ID NO:69, but excluding the poly(A) tail at the 3' end of SEQ ID NO:69; and
 - (bb) the nucleotide sequence of the cDNA insert of clone bi120_2 deposited with the ATCC under accession number 98629;
 - (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
 - (iii) amplifying human DNA sequences; and
 - (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:69, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:69 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:69 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:69. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:69 from nucleotide 90 to nucleotide 1019, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:69 from nucleotide 90 to nucleotide 1019, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:69 from nucleotide 90 to nucleotide 1019. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:69 from nucleotide 243 to nucleotide 1019, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:69 from nucleotide 243 to nucleotide 1019, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:69 from nucleotide 243 to nucleotide 1019.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:70;
- 5 (b) fragments of the amino acid sequence of SEQ ID NO:70, each fragment comprising eight consecutive amino acids of SEQ ID NO:70; and
- (c) the amino acid sequence encoded by the cDNA insert of clone bi120_2 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such 10 protein comprises the amino acid sequence of SEQ ID NO:70. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:70 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:70, or a protein comprising a fragment of the amino acid sequence 15 of SEQ ID NO:70 having biological activity, the fragment comprising the amino acid sequence from amino acid 149 to amino acid 158 of SEQ ID NO:70.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 20 NO:71;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:71 from nucleotide 682 to nucleotide 894;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bn594_1 deposited with the ATCC under 25 accession number 98629;
- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bn594_1 deposited with the ATCC under accession number 98629;
- (e) a polynucleotide comprising the nucleotide sequence of a mature 30 protein coding sequence of clone bn594_1 deposited with the ATCC under accession number 98629;
- (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bn594_1 deposited with the ATCC under accession number 98629;

- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:72;
- 5 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:72 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:72;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- 10 (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:71 from nucleotide 682 to nucleotide 894; the nucleotide sequence of the full-length protein coding sequence of clone bn594_1 deposited with the ATCC under accession 15 number 98629; or the nucleotide sequence of a mature protein coding sequence of clone bn594_1 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bn594_1 deposited with the ATCC under accession number 98629. In further preferred embodiments, the present invention provides a 20 polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:72 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:72, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:72 having biological activity, the fragment comprising the amino acid sequence from amino acid 30 to amino acid 39 of SEQ ID NO:72.
- 25

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:71.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 30 (a) a process comprising the steps of:
- (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:71, but excluding the poly(A) tail at the 3' end of SEQ ID NO:71; and

(ab) the nucleotide sequence of the cDNA insert of clone bn594_1 deposited with the ATCC under accession number 98629;

5

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

10

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

15

(ba) SEQ ID NO:71, but excluding the poly(A) tail at the 3' end of SEQ ID NO:71; and

(bb) the nucleotide sequence of the cDNA insert of clone bn594_1 deposited with the ATCC under accession number 98629;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

20

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:71, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 25 ID NO:71 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:71, but excluding the poly(A) tail at the 3' end of SEQ ID NO:71. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:71 from nucleotide 682 to nucleotide 894, and extending contiguously from a nucleotide sequence corresponding to the 5' end 30 of said sequence of SEQ ID NO:71 from nucleotide 682 to nucleotide 894, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:71 from nucleotide 682 to nucleotide 894.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 5

 - (a) the amino acid sequence of SEQ ID NO:72;
 - (b) fragments of the amino acid sequence of SEQ ID NO:72, each fragment comprising eight consecutive amino acids of SEQ ID NO:72; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone bn594_1 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such
10 protein comprises the amino acid sequence of SEQ ID NO:72. In further preferred
embodiments, the present invention provides a protein comprising a fragment of the
amino acid sequence of SEQ ID NO:72 having biological activity, the fragment preferably
comprising eight (more preferably twenty, most preferably thirty) consecutive amino
acids of SEQ ID NO:72, or a protein comprising a fragment of the amino acid sequence
15 of SEQ ID NO:72 having biological activity, the fragment comprising the amino acid
sequence from amino acid 30 to amino acid 39 of SEQ ID NO:72.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 20 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:73;

(b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:73 from nucleotide 1184 to nucleotide 1582;

(c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:73 from nucleotide 1265 to nucleotide 1582;

25 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone en554_1 deposited with the ATCC under accession number 98629;

(e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone en554_1 deposited with the ATCC under accession number 98629;

30 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone en554_1 deposited with the ATCC under accession number 98629;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone en554_1 deposited with the ATCC under accession number 98629;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:74;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:74 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:74;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
15 NO:73 from nucleotide 1184 to nucleotide 1582; the nucleotide sequence of SEQ ID NO:73 from nucleotide 1265 to nucleotide 1582; the nucleotide sequence of the full-length protein coding sequence of clone en554_1 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone en554_1 deposited with the ATCC under accession number 98629. In other preferred
20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone en554_1 deposited with the ATCC under accession number 98629. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:74 having biological activity, the fragment preferably comprising eight (more
25 preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:74, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:74 having biological activity, the fragment comprising the amino acid sequence from amino acid 61 to amino acid 70 of SEQ ID NO:74.

Other embodiments provide the gene corresponding to the cDNA sequence of
30 SEQ ID NO:73.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:73, but excluding the poly(A) tail at the 3' end of SEQ ID NO:73; and

(ab) the nucleotide sequence of the cDNA insert of clone en554_1 deposited with the ATCC under accession number 98629;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:73, but excluding the poly(A) tail at the 3' end of SEQ ID NO:73; and

(bb) the nucleotide sequence of the cDNA insert of clone en554_1 deposited with the ATCC under accession number 98629;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:73, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:73 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:73, but excluding the poly(A) tail at the 3' end of SEQ ID NO:73. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:73 from nucleotide 1184 to nucleotide 1582, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:73 from nucleotide 1184 to nucleotide 1582,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:73 from nucleotide 1184 to nucleotide 1582. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:73 from nucleotide 1265 to nucleotide 1582, and extending 5 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:73 from nucleotide 1265 to nucleotide 1582, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:73 from nucleotide 1265 to nucleotide 1582.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:74;
- (b) fragments of the amino acid sequence of SEQ ID NO:74, each fragment comprising eight consecutive amino acids of SEQ ID NO:74; and
- 15 (c) the amino acid sequence encoded by the cDNA insert of clone en554_1 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:74. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 20 amino acid sequence of SEQ ID NO:74 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:74, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:74 having biological activity, the fragment comprising the amino acid sequence from amino acid 61 to amino acid 70 of SEQ ID NO:74.

25 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:75;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:75 from nucleotide 79 to nucleotide 504;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:75 from nucleotide 322 to nucleotide 504;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone na474_10 deposited with the ATCC under accession number 98629;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone na474_10 deposited with the ATCC under accession number 98629;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone na474_10 deposited with the ATCC under accession number 98629;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone na474_10 deposited with the ATCC under accession number 98629;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:76;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:76 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:76;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:75 from nucleotide 79 to nucleotide 504; the nucleotide sequence of SEQ ID NO:75 from nucleotide 322 to nucleotide 504; the nucleotide sequence of the full-length protein coding sequence of clone na474_10 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone na474_10 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone na474_10 deposited with the ATCC under accession number 98629. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:76 having biological activity, the fragment preferably comprising eight (more

preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:76, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:76 having biological activity, the fragment comprising the amino acid sequence from amino acid 66 to amino acid 75 of SEQ ID NO:76.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:75.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

10 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:75, but excluding the poly(A) tail at the 3' end of SEQ ID NO:75; and

15 (ab) the nucleotide sequence of the cDNA insert of clone na474_10 deposited with the ATCC under accession number 98629;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

20 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:75, but excluding the poly(A) tail at the 3' end of SEQ ID NO:75; and

(bb) the nucleotide sequence of the cDNA insert of clone na474_10 deposited with the ATCC under accession number 98629;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:75, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:75 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:75, but

5 excluding the poly(A) tail at the 3' end of SEQ ID NO:75. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:75 from nucleotide 79 to nucleotide 504, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:75 from nucleotide 79 to nucleotide 504, to a nucleotide

10 sequence corresponding to the 3' end of said sequence of SEQ ID NO:75 from nucleotide 79 to nucleotide 504. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:75 from nucleotide 322 to nucleotide 504, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:75 from

15 nucleotide 322 to nucleotide 504, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:75 from nucleotide 322 to nucleotide 504.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 20 (a) the amino acid sequence of SEQ ID NO:76;
- (b) fragments of the amino acid sequence of SEQ ID NO:76, each fragment comprising eight consecutive amino acids of SEQ ID NO:76; and
- (c) the amino acid sequence encoded by the cDNA insert of clone na474_10 deposited with the ATCC under accession number 98629;
- 25 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:76. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:76 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino
- 30 acids of SEQ ID NO:76, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:76 having biological activity, the fragment comprising the amino acid sequence from amino acid 66 to amino acid 75 of SEQ ID NO:76.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:77;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:77 from nucleotide 92 to nucleotide 1435;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:77 from nucleotide 170 to nucleotide 1435;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nn16_10 deposited with the ATCC under accession number 98629;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nn16_10 deposited with the ATCC under accession number 98629;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nn16_10 deposited with the ATCC under accession number 98629;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nn16_10 deposited with the ATCC under accession number 98629;
- 20 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:78;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:78 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:78;
- 25 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any 30 one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:77 from nucleotide 92 to nucleotide 1435; the nucleotide sequence of SEQ ID NO:77 from nucleotide 170 to nucleotide 1435; the nucleotide sequence of the full-length protein

coding sequence of clone nn16_10 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone nn16_10 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by 5 the cDNA insert of clone nn16_10 deposited with the ATCC under accession number 98629. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:78 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:78, or 10 a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:78 having biological activity, the fragment comprising the amino acid sequence from amino acid 218 to amino acid 227 of SEQ ID NO:78.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:77.

15 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 20 consisting of:
 - (aa) SEQ ID NO:77, but excluding the poly(A) tail at the 3' end of SEQ ID NO:77; and
 - (ab) the nucleotide sequence of the cDNA insert of clone nn16_10 deposited with the ATCC under accession number 98629;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
 - (iii) isolating the DNA polynucleotides detected with the probe(s);

and

- (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:77, but excluding the poly(A) tail at the 3' end of SEQ ID NO:77; and

(bb) the nucleotide sequence of the cDNA insert of clone nn16_10 deposited with the ATCC under accession number 98629;

5 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a 10 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:77, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:77 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:77, but excluding the poly(A) tail at the 3' end of SEQ ID NO:77. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 15 corresponding to the cDNA sequence of SEQ ID NO:77 from nucleotide 92 to nucleotide 1435, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:77 from nucleotide 92 to nucleotide 1435, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:77 from nucleotide 92 to nucleotide 1435. Also preferably the polynucleotide isolated according to the above 20 process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:77 from nucleotide 170 to nucleotide 1435, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:77 from nucleotide 170 to nucleotide 1435, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:77 from nucleotide 170 to nucleotide 1435.

25 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:78;

(b) fragments of the amino acid sequence of SEQ ID NO:78, each 30 fragment comprising eight consecutive amino acids of SEQ ID NO:78; and

(c) the amino acid sequence encoded by the cDNA insert of clone nn16_10 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:78. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:78 having biological activity, the fragment preferably 5 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:78, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:78 having biological activity, the fragment comprising the amino acid sequence from amino acid 218 to amino acid 227 of SEQ ID NO:78.

In one embodiment, the present invention provides a composition comprising an 10 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:79;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:79 from nucleotide 1567 to nucleotide 1809;
- 15 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:79 from nucleotide 1726 to nucleotide 1809;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone np189_9 deposited with the ATCC under accession number 98629;
- 20 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone np189_9 deposited with the ATCC under accession number 98629;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone np189_9 deposited with the ATCC under 25 accession number 98629;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone np189_9 deposited with the ATCC under accession number 98629;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:80;
- 30 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:80 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:80;

(j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

(k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and

5 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:79 from nucleotide 1567 to nucleotide 1809; the nucleotide sequence of SEQ ID NO:79 from nucleotide 1726 to nucleotide 1809; the nucleotide sequence of the full-length

10 protein coding sequence of clone np189_9 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone np189_9 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone np189_9 deposited with the ATCC under accession number

15 98629. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:80 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:80, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence

20 of SEQ ID NO:80 having biological activity, the fragment comprising the amino acid sequence from amino acid 35 to amino acid 44 of SEQ ID NO:80.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:79.

Further embodiments of the invention provide isolated polynucleotides produced
25 according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

30 (aa) SEQ ID NO:79, but excluding the poly(A) tail at the 3' end of SEQ ID NO:79; and

(ab) the nucleotide sequence of the cDNA insert of clone np189_9 deposited with the ATCC under accession number 98629;

- (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
- (iii) isolating the DNA polynucleotides detected with the probe(s);

5 and

- (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (ba) SEQ ID NO:79, but excluding the poly(A) tail at the 3' end of SEQ ID NO:79; and
 - (bb) the nucleotide sequence of the cDNA insert of clone np189_9 deposited with the ATCC under accession number 98629;
 - (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
 - (iii) amplifying human DNA sequences; and
 - (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:79, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:79 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:79, but excluding the poly(A) tail at the 3' end of SEQ ID NO:79. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:79 from nucleotide 1567 to nucleotide 1809, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:79 from nucleotide 1567 to nucleotide 1809, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:79 from nucleotide 1567 to nucleotide 1809. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:79 from nucleotide 1726 to nucleotide 1809, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:79 from nucleotide 1726 to nucleotide 1809, to a nucleotide sequence

corresponding to the 3' end of said sequence of SEQ ID NO:79 from nucleotide 1726 to nucleotide 1809.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 5 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:80;
- (b) fragments of the amino acid sequence of SEQ ID NO:80, each fragment comprising eight consecutive amino acids of SEQ ID NO:80; and
- (c) the amino acid sequence encoded by the cDNA insert of clone

10 np189_9 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:80. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:80 having biological activity, the fragment preferably 15 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:80, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:80 having biological activity, the fragment comprising the amino acid sequence from amino acid 35 to amino acid 44 of SEQ ID NO:80.

In one embodiment, the present invention provides a composition comprising an 20 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:81;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:81 from nucleotide 2054 to nucleotide 2206;
- 25 (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ny226_1 deposited with the ATCC under accession number 98629;
- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ny226_1 deposited with the ATCC under accession number 98629;
- 30 (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ny226_1 deposited with the ATCC under accession number 98629;

(f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ny226_1 deposited with the ATCC under accession number 98629;

(g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:82;

5 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:82 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:82;

(i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;

10 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above; and

(k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
15 NO:81 from nucleotide 2054 to nucleotide 2206; the nucleotide sequence of the full-length protein coding sequence of clone ny226_1 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone ny226_1 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by
20 the cDNA insert of clone ny226_1 deposited with the ATCC under accession number 98629. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:82 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:82, or
25 a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:82 having biological activity, the fragment comprising the amino acid sequence from amino acid 20 to amino acid 29 of SEQ ID NO:82.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:81.

30 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:81, but excluding the poly(A) tail at the 3' end of SEQ ID NO:81; and

(ab) the nucleotide sequence of the cDNA insert of clone ny226_1 deposited with the ATCC under accession number 98629;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:81, but excluding the poly(A) tail at the 3' end of SEQ ID NO:81; and

(bb) the nucleotide sequence of the cDNA insert of clone ny226_1 deposited with the ATCC under accession number 98629;

20 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:81, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:81 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:81, but excluding the poly(A) tail at the 3' end of SEQ ID NO:81. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:81 from nucleotide 2054 to nucleotide 2206, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:81 from nucleotide 2054 to nucleotide 2206,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:81 from nucleotide 2054 to nucleotide 2206.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 5 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:82;
- (b) fragments of the amino acid sequence of SEQ ID NO:82, each fragment comprising eight consecutive amino acids of SEQ ID NO:82; and
- (c) the amino acid sequence encoded by the cDNA insert of clone

10 ny226_1 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:82. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:82 having biological activity, the fragment preferably 15 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:82, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:82 having biological activity, the fragment comprising the amino acid sequence from amino acid 20 to amino acid 29 of SEQ ID NO:82.

In one embodiment, the present invention provides a composition comprising an 20 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:83;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:83 from nucleotide 567 to nucleotide 701;
- 25 (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pe159_1 deposited with the ATCC under accession number 98629;
- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pe159_1 deposited with the ATCC under accession number 30 98629;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pe159_1 deposited with the ATCC under accession number 98629;

- (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pe159_1 deposited with the ATCC under accession number 98629;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:84;
- 5 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:84 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:84;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- 10 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:83 from nucleotide 567 to nucleotide 701; the nucleotide sequence of the full-length protein coding sequence of clone pe159_1 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone pe159_1 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pe159_1 deposited with the ATCC under accession number 98629. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:84 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:84, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:84 having biological activity, the fragment comprising the amino acid sequence from amino acid 17 to amino acid 26 of SEQ ID NO:84.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:83.

30 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:83, but excluding the poly(A) tail at the 3' end of SEQ ID NO:83; and

(ab) the nucleotide sequence of the cDNA insert of clone pe159_1 deposited with the ATCC under accession number 98629;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:83, but excluding the poly(A) tail at the 3' end of SEQ ID NO:83; and

20 (bb) the nucleotide sequence of the cDNA insert of clone pe159_1 deposited with the ATCC under accession number 98629;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:83, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:83 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:83, but excluding the poly(A) tail at the 3' end of SEQ ID NO:83. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:83 from nucleotide 567 to nucleotide 701, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:83 from nucleotide 567 to nucleotide 701, to a nucleotide

sequence corresponding to the 3' end of said sequence of SEQ ID NO:83 from nucleotide 567 to nucleotide 701.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 5 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:84;
- (b) fragments of the amino acid sequence of SEQ ID NO:84, each fragment comprising eight consecutive amino acids of SEQ ID NO:84; and
- (c) the amino acid sequence encoded by the cDNA insert of clone

10 pe159_1 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:84. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:84 having biological activity, the fragment preferably 15 comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:84, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:84 having biological activity, the fragment comprising the amino acid sequence from amino acid 17 to amino acid 26 of SEQ ID NO:84.

In one embodiment, the present invention provides a composition comprising an 20 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:85;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:85 from nucleotide 593 to nucleotide 784;
- 25 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:85 from nucleotide 698 to nucleotide 784;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pj314_8 deposited with the ATCC under accession number 98629;
- 30 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pj314_8 deposited with the ATCC under accession number 98629;

- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pj314_8 deposited with the ATCC under accession number 98629;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pj314_8 deposited with the ATCC under accession number 98629;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:86;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:86 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:86;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:85 from nucleotide 593 to nucleotide 784; the nucleotide sequence of SEQ ID NO:85 from nucleotide 698 to nucleotide 784; the nucleotide sequence of the full-length protein coding sequence of clone pj314_8 deposited with the ATCC under accession number 98629; or the nucleotide sequence of a mature protein coding sequence of clone pj314_8 deposited with the ATCC under accession number 98629. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pj314_8 deposited with the ATCC under accession number 98629.
- In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:86 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:86, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:86 having biological activity, the fragment comprising the amino acid sequence from amino acid 27 to amino acid 36 of SEQ ID NO:86.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:85.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

5 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:85, but excluding the poly(A) tail at the 3' end of SEQ ID NO:85; and

10 (ab) the nucleotide sequence of the cDNA insert of clone pj314_8 deposited with the ATCC under accession number 98629;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

15 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

20 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:85, but excluding the poly(A) tail at the 3' end of SEQ ID NO:85; and

(bb) the nucleotide sequence of the cDNA insert of clone pj314_8 deposited with the ATCC under accession number 98629;

25 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:85, and 30 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:85 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:85, but excluding the poly(A) tail at the 3' end of SEQ ID NO:85. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence

corresponding to the cDNA sequence of SEQ ID NO:85 from nucleotide 593 to nucleotide 784, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:85 from nucleotide 593 to nucleotide 784, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:85 from nucleotide 593 to nucleotide 784. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:85 from nucleotide 698 to nucleotide 784, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:85 from nucleotide 698 to nucleotide 784, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:85 from nucleotide 698 to nucleotide 784.

10 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:86;
- 15 (b) fragments of the amino acid sequence of SEQ ID NO:86, each fragment comprising eight consecutive amino acids of SEQ ID NO:86; and
- (c) the amino acid sequence encoded by the cDNA insert of clone pj314_8 deposited with the ATCC under accession number 98629;

the protein being substantially free from other mammalian proteins. Preferably such 20 protein comprises the amino acid sequence of SEQ ID NO:86. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:86 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:86, or a protein comprising a fragment of the amino acid sequence 25 of SEQ ID NO:86 having biological activity, the fragment comprising the amino acid sequence from amino acid 27 to amino acid 36 of SEQ ID NO:86.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 30 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:87;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:87 from nucleotide 176 to nucleotide 328;

- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:87 from nucleotide 239 to nucleotide 328;
- (d) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:87 from nucleotide 1 to nucleotide 512;
- 5 (e) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bp870_1 deposited with the ATCC under accession number 98724;
- (f) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bp870_1 deposited with the ATCC under accession number 98724;
- 10 (g) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bp870_1 deposited with the ATCC under accession number 98724;
- (h) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bp870_1 deposited with the ATCC under accession number 98724;
- 15 (i) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:88;
- (j) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:88 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:88;
- 20 (k) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(h) above;
- (l) a polynucleotide which encodes a species homologue of the protein of (i) or (j) above ; and
- 25 (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(j).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:87 from nucleotide 176 to nucleotide 328; the nucleotide sequence of SEQ ID NO:87 from nucleotide 239 to nucleotide 328; the nucleotide sequence of SEQ ID NO:87 from nucleotide 1 to nucleotide 512; the nucleotide sequence of the full-length protein coding sequence of clone bp870_1 deposited with the ATCC under accession number 98724; or the nucleotide sequence of a mature protein coding sequence of clone bp870_1 deposited with the ATCC under accession number 98724. In other preferred embodiments, the

polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bp870_1 deposited with the ATCC under accession number 98724. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:88 having 5 biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:88, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:88 having biological activity, the fragment comprising the amino acid sequence from amino acid 20 to amino acid 29 of SEQ ID NO:88.

10 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:87.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

15 (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:87, but excluding the poly(A) tail at the 3' end of SEQ ID NO:87; and

20 (ab) the nucleotide sequence of the cDNA insert of clone bp870_1 deposited with the ATCC under accession number 98724;
(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
(iii) isolating the DNA polynucleotides detected with the 25 probe(s);

and

(b) a process comprising the steps of:

30 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:87, but excluding the poly(A) tail at the 3' end of SEQ ID NO:87; and

- (bb) the nucleotide sequence of the cDNA insert of clone bp870_1 deposited with the ATCC under accession number 98724;
- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- 5 (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:87, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 10 ID NO:87 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:87, but excluding the poly(A) tail at the 3' end of SEQ ID NO:87. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:87 from nucleotide 176 to nucleotide 328, and extending contiguously from a nucleotide sequence corresponding to the 5' end 15 of said sequence of SEQ ID NO:87 from nucleotide 176 to nucleotide 328, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:87 from nucleotide 176 to nucleotide 328. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:87 from nucleotide 239 to nucleotide 328, and extending contiguously from a 20 nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:87 from nucleotide 239 to nucleotide 328, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:87 from nucleotide 239 to nucleotide 328. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:87 from nucleotide 1 to 25 nucleotide 512, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:87 from nucleotide 1 to nucleotide 512, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:87 from nucleotide 1 to nucleotide 512.

In other embodiments, the present invention provides a composition comprising 30 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:88;

- (b) fragments of the amino acid sequence of SEQ ID NO:88, each fragment comprising eight consecutive amino acids of SEQ ID NO:88; and
- (c) the amino acid sequence encoded by the cDNA insert of clone bp870_1 deposited with the ATCC under accession number 98724;
- 5 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:88. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:88 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino
- 10 acids of SEQ ID NO:88, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:88 having biological activity, the fragment comprising the amino acid sequence from amino acid 20 to amino acid 29 of SEQ ID NO:88.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 15 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:89;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:89 from nucleotide 15 to nucleotide 749;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:89 from nucleotide 141 to nucleotide 749;
- 20 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bx141_2 deposited with the ATCC under accession number 98630;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bx141_2 deposited with the ATCC under accession number 98630;
- 25 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bx141_2 deposited with the ATCC under accession number 98630;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bx141_2 deposited with the ATCC under accession number 98630;
- 30 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:90;

- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:90 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:90;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

10 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:89 from nucleotide 15 to nucleotide 749; the nucleotide sequence of SEQ ID NO:89 from nucleotide 141 to nucleotide 749; the nucleotide sequence of the full-length protein coding sequence of clone bx141_2 deposited with the ATCC under accession number 98630; or the nucleotide sequence of a mature protein coding sequence of clone bx141_2
15 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bx141_2 deposited with the ATCC under accession number 98630. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:90
20 from amino acid 1 to amino acid 122. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:90 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:90, or a polynucleotide encoding a protein comprising a fragment of
25 the amino acid sequence of SEQ ID NO:90 having biological activity, the fragment comprising the amino acid sequence from amino acid 117 to amino acid 126 of SEQ ID NO:90.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:89.

30 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:89, but excluding the poly(A) tail at the 3' end of SEQ ID NO:89; and

(ab) the nucleotide sequence of the cDNA insert of clone bx141_2 deposited with the ATCC under accession number 98630;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:89, but excluding the poly(A) tail at the 3' end of SEQ ID NO:89; and

20 (bb) the nucleotide sequence of the cDNA insert of clone bx141_2 deposited with the ATCC under accession number 98630;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:89, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:89 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:89, but excluding the poly(A) tail at the 3' end of SEQ ID NO:89. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:89 from nucleotide 15 to nucleotide 749, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:89 from nucleotide 15 to nucleotide 749, to a nucleotide

sequence corresponding to the 3' end of said sequence of SEQ ID NO:89 from nucleotide 15 to nucleotide 749. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:89 from nucleotide 141 to nucleotide 749, and extending contiguously from a 5 nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:89 from nucleotide 141 to nucleotide 749, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:89 from nucleotide 141 to nucleotide 749.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 10 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:90;
 - (b) the amino acid sequence of SEQ ID NO:90 from amino acid 1 to amino acid 122;
 - (c) fragments of the amino acid sequence of SEQ ID NO:90, each fragment comprising eight consecutive amino acids of SEQ ID NO:90; and
 - (d) the amino acid sequence encoded by the cDNA insert of clone bx141_2 deposited with the ATCC under accession number 98630;
- the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:90 or the amino acid sequence 20 of SEQ ID NO:90 from amino acid 1 to amino acid 122. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:90 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:90, or a protein comprising a fragment of the amino acid sequence of SEQ ID 25 NO:90 having biological activity, the fragment comprising the amino acid sequence from amino acid 117 to amino acid 126 of SEQ ID NO:90.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:91;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:91 from nucleotide 100 to nucleotide 1767;

- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:91 from nucleotide 280 to nucleotide 1767;
- 5 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone cw272_7 deposited with the ATCC under accession number 98630;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone cw272_7 deposited with the ATCC under accession number 98630;
- 10 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone cw272_7 deposited with the ATCC under accession number 98630;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone cw272_7 deposited with the ATCC under accession number 98630;
- 15 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:92;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:92 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:92;
- 20 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- 25 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:91 from nucleotide 100 to nucleotide 1767; the nucleotide sequence of SEQ ID NO:91 from nucleotide 280 to nucleotide 1767; the nucleotide sequence of the full-length protein coding sequence of clone cw272_7 deposited with the ATCC under accession number 98630; or the nucleotide sequence of a mature protein coding sequence of clone cw272_7
- 30 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone cw272_7 deposited with the ATCC under accession number 98630. In further preferred embodiments, the present invention provides a

polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:92 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:92, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:92 having biological activity, the fragment comprising the amino acid sequence from amino acid 273 to amino acid 282 of SEQ ID NO:92.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:91.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:91, but excluding the poly(A) tail at the 3' end of SEQ ID NO:91; and

(ab) the nucleotide sequence of the cDNA insert of clone cw272_7 deposited with the ATCC under accession number 98630;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:91, but excluding the poly(A) tail at the 3' end of SEQ ID NO:91; and

(bb) the nucleotide sequence of the cDNA insert of clone cw272_7 deposited with the ATCC under accession number 98630;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:91, and

5 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:91 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:91, but excluding the poly(A) tail at the 3' end of SEQ ID NO:91. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:91 from nucleotide 100 to nucleotide

10 1767, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:91 from nucleotide 100 to nucleotide 1767, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:91 from nucleotide 100 to nucleotide 1767. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of

15 SEQ ID NO:91 from nucleotide 280 to nucleotide 1767, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:91 from nucleotide 280 to nucleotide 1767, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:91 from nucleotide 280 to nucleotide 1767.

In other embodiments, the present invention provides a composition comprising

20 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:92;
- (b) fragments of the amino acid sequence of SEQ ID NO:92, each fragment comprising eight consecutive amino acids of SEQ ID NO:92; and
- 25 (c) the amino acid sequence encoded by the cDNA insert of clone cw272_7 deposited with the ATCC under accession number 98630;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:92. In further preferred embodiments, the present invention provides a protein comprising a fragment of the

30 amino acid sequence of SEQ ID NO:92 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:92, or a protein comprising a fragment of the amino acid sequence

of SEQ ID NO:92 having biological activity, the fragment comprising the amino acid sequence from amino acid 273 to amino acid 282 of SEQ ID NO:92.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 5 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:93;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:93 from nucleotide 49 to nucleotide 1245;
- 10 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:93 from nucleotide 265 to nucleotide 1245;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nh328_5 deposited with the ATCC under accession number 98630;
- 15 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nh328_5 deposited with the ATCC under accession number 98630;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nh328_5 deposited with the ATCC under accession number 98630;
- 20 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nh328_5 deposited with the ATCC under accession number 98630;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:94;
- 25 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:94 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:94;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 30 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:93 from nucleotide 49 to nucleotide 1245; the nucleotide sequence of SEQ ID NO:93 from nucleotide 265 to nucleotide 1245; the nucleotide sequence of the full-length protein coding sequence of clone nh328_5 deposited with the ATCC under accession number 5 98630; or the nucleotide sequence of a mature protein coding sequence of clone nh328_5 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nh328_5 deposited with the ATCC under accession number 98630. In yet other preferred embodiments, the present invention provides a 10 polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:94 from amino acid 229 to amino acid 387. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:94 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:94, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:94 having biological activity, the fragment comprising the amino acid sequence from amino acid 194 to amino acid 203 of SEQ ID 15 NO:94.

Other embodiments provide the gene corresponding to the cDNA sequence of 20 SEQ ID NO:93.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize 25 in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:93, but excluding the poly(A) tail at the 3' end of SEQ ID NO:93; and
 - (ab) the nucleotide sequence of the cDNA insert of clone nh328_5 deposited with the ATCC under accession number 98630;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:93, but excluding the poly(A) tail at the 3' end of SEQ ID NO:93; and

10 (bb) the nucleotide sequence of the cDNA insert of clone nh328_5 deposited with the ATCC under accession number 98630;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:93, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:93 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:93, but 20 excluding the poly(A) tail at the 3' end of SEQ ID NO:93. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:93 from nucleotide 49 to nucleotide 1245, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:93 from nucleotide 49 to nucleotide 1245, to a nucleotide 25 sequence corresponding to the 3' end of said sequence of SEQ ID NO:93 from nucleotide 49 to nucleotide 1245. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:93 from nucleotide 265 to nucleotide 1245, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:93 from 30 nucleotide 265 to nucleotide 1245, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:93 from nucleotide 265 to nucleotide 1245.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:94;
- 5 (b) the amino acid sequence of SEQ ID NO:94 from amino acid 229 to amino acid 387;
- (c) fragments of the amino acid sequence of SEQ ID NO:94, each fragment comprising eight consecutive amino acids of SEQ ID NO:94; and
- 10 (d) the amino acid sequence encoded by the cDNA insert of clone nh328_5 deposited with the ATCC under accession number 98630;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:94 or the amino acid sequence of SEQ ID NO:94 from amino acid 229 to amino acid 387. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 15 amino acid sequence of SEQ ID NO:94 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:94, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:94 having biological activity, the fragment comprising the amino acid sequence from amino acid 194 to amino acid 203 of SEQ ID NO:94.

20 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:95;
- 25 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:95 from nucleotide 166 to nucleotide 552;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nm214_3 deposited with the ATCC under accession number 98630;
- 30 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nm214_3 deposited with the ATCC under accession number 98630;

- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nm214_3 deposited with the ATCC under accession number 98630;
- 5 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nm214_3 deposited with the ATCC under accession number 98630;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:96;
- 10 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:96 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:96;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- 15 (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:95 from nucleotide 166 to nucleotide 552; the nucleotide sequence of the full-length protein coding sequence of clone nm214_3 deposited with the ATCC under accession number 98630; or the nucleotide sequence of a mature protein coding sequence of clone nm214_3 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nm214_3 deposited with the ATCC under accession number 98630. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:96 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:96, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:96 having biological activity, the fragment comprising the amino acid sequence from amino acid 59 to amino acid 68 of SEQ ID NO:96.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:95.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize

5 in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:95, but excluding the poly(A) tail at the
3' end of SEQ ID NO:95; and

10 (ab) the nucleotide sequence of the cDNA insert of clone
nm214_3 deposited with the ATCC under accession number 98630;

(ii) hybridizing said probe(s) to human genomic DNA in
conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the
probe(s);

15 and

- (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that
hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from
the group consisting of:

20 (ba) SEQ ID NO:95, but excluding the poly(A) tail at the
3' end of SEQ ID NO:95; and

(bb) the nucleotide sequence of the cDNA insert of clone
nm214_3 deposited with the ATCC under accession number 98630;

25 (ii) hybridizing said primer(s) to human genomic DNA in
conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a
nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:95, and
30 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ
ID NO:95 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:95, but
excluding the poly(A) tail at the 3' end of SEQ ID NO:95. Also preferably the
polynucleotide isolated according to the above process comprises a nucleotide sequence

corresponding to the cDNA sequence of SEQ ID NO:95 from nucleotide 166 to nucleotide 552, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:95 from nucleotide 166 to nucleotide 552, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:95 from nucleotide 5 166 to nucleotide 552.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:96;
 - 10 (b) fragments of the amino acid sequence of SEQ ID NO:96, each fragment comprising eight consecutive amino acids of SEQ ID NO:96; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone nm214_3 deposited with the ATCC under accession number 98630;
- the protein being substantially free from other mammalian proteins. Preferably such 15 protein comprises the amino acid sequence of SEQ ID NO:96. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:96 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:96, or a protein comprising a fragment of the amino acid sequence 20 of SEQ ID NO:96 having biological activity, the fragment comprising the amino acid sequence from amino acid 59 to amino acid 68 of SEQ ID NO:96.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 25 NO:97;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:97 from nucleotide 203 to nucleotide 1441;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:97 from nucleotide 251 to nucleotide 1441;
- 30 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nn320_2 deposited with the ATCC under accession number 98630;

- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nn320_2 deposited with the ATCC under accession number 98630;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nn320_2 deposited with the ATCC under accession number 98630;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nn320_2 deposited with the ATCC under accession number 98630;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:98;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:98 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:98;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- 20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:97 from nucleotide 203 to nucleotide 1441; the nucleotide sequence of SEQ ID NO:97 from nucleotide 251 to nucleotide 1441; the nucleotide sequence of the full-length protein coding sequence of clone nn320_2 deposited with the ATCC under accession number 98630; or the nucleotide sequence of a mature protein coding sequence of clone nn320_2
- 25 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nn320_2 deposited with the ATCC under accession number 98630. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:98
- 30 from amino acid 1 to amino acid 92. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:98 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino

acids of SEQ ID NO:98, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:98 having biological activity, the fragment comprising the amino acid sequence from amino acid 201 to amino acid 210 of SEQ ID NO:98.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:97.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

10 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:97, but excluding the poly(A) tail at the 3' end of SEQ ID NO:97; and

15 (ab) the nucleotide sequence of the cDNA insert of clone nn320_2 deposited with the ATCC under accession number 98630;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

20 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:97, but excluding the poly(A) tail at the 3' end of SEQ ID NO:97; and

(bb) the nucleotide sequence of the cDNA insert of clone nn320_2 deposited with the ATCC under accession number 98630;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:97, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:97 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:97, but 5 excluding the poly(A) tail at the 3' end of SEQ ID NO:97. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:97 from nucleotide 203 to nucleotide 1441, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:97 from nucleotide 203 to nucleotide 1441, to a nucleotide 10 sequence corresponding to the 3' end of said sequence of SEQ ID NO:97 from nucleotide 203 to nucleotide 1441. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:97 from nucleotide 251 to nucleotide 1441, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:97 from 15 nucleotide 251 to nucleotide 1441, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:97 from nucleotide 251 to nucleotide 1441.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 20 (a) the amino acid sequence of SEQ ID NO:98;
- (b) the amino acid sequence of SEQ ID NO:98 from amino acid 1 to amino acid 92;
- (c) fragments of the amino acid sequence of SEQ ID NO:98, each fragment comprising eight consecutive amino acids of SEQ ID NO:98; and
- 25 (d) the amino acid sequence encoded by the cDNA insert of clone nn320_2 deposited with the ATCC under accession number 98630;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:98 or the amino acid sequence of SEQ ID NO:98 from amino acid 1 to amino acid 92. In further preferred embodiments, 30 the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:98 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:98, or a protein comprising a fragment of the amino acid sequence of SEQ ID

NO:98 having biological activity, the fragment comprising the amino acid sequence from amino acid 201 to amino acid 210 of SEQ ID NO:98.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 5 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:99;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:99 from nucleotide 74 to nucleotide 1531;
- 10 (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pp392_3 deposited with the ATCC under accession number 98630;
- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pp392_3 deposited with the ATCC under accession number 98630;
- 15 (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pp392_3 deposited with the ATCC under accession number 98630;
- (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pp392_3 deposited with the ATCC under accession number 98630;
- 20 (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:100;
- (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:100 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:100;
- 25 (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:99 from nucleotide 74 to nucleotide 1531; the nucleotide sequence of the full-length protein coding sequence of clone pp392_3 deposited with the ATCC under accession

number 98630; or the nucleotide sequence of a mature protein coding sequence of clone pp392_3 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pp392_3 deposited with the ATCC under accession number 5 98630. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:100 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:100, or a polynucleotide encoding a protein comprising a fragment of the amino acid 10 sequence of SEQ ID NO:100 having biological activity, the fragment comprising the amino acid sequence from amino acid 237 to amino acid 246 of SEQ ID NO:100.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:99.

Further embodiments of the invention provide isolated polynucleotides produced 15 according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

20 (aa) SEQ ID NO:99, but excluding the poly(A) tail at the 3' end of SEQ ID NO:99; and

(ab) the nucleotide sequence of the cDNA insert of clone pp392_3 deposited with the ATCC under accession number 98630;

25 (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

30 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:99, but excluding the poly(A) tail at the 3' end of SEQ ID NO:99; and

(bb) the nucleotide sequence of the cDNA insert of clone pp392_3 deposited with the ATCC under accession number 98630;

5 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a 10 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:99, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:99 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:99 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:99. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 15 corresponding to the cDNA sequence of SEQ ID NO:99 from nucleotide 74 to nucleotide 1531, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:99 from nucleotide 74 to nucleotide 1531, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:99 from nucleotide 74 to nucleotide 1531.

20 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:100;

25 (b) fragments of the amino acid sequence of SEQ ID NO:100, each fragment comprising eight consecutive amino acids of SEQ ID NO:100; and

(c) the amino acid sequence encoded by the cDNA insert of clone pp392_3 deposited with the ATCC under accession number 98630;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:100. In further preferred 30 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:100 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:100, or a protein comprising a fragment of the amino acid

sequence of SEQ ID NO:100 having biological activity, the fragment comprising the amino acid sequence from amino acid 237 to amino acid 246 of SEQ ID NO:100.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 5 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:101;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:101 from nucleotide 58 to nucleotide 474;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:101 from nucleotide 310 to nucleotide 474;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ya13_1 deposited with the ATCC under accession number 98630;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ya13_1 deposited with the ATCC under accession number 98630;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ya13_1 deposited with the ATCC under accession number 98630;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ya13_1 deposited with the ATCC under accession number 98630;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:102;
- 20 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:102 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:102;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 25 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:101 from nucleotide 58 to nucleotide 474; the nucleotide sequence of SEQ ID NO:101 from nucleotide 310 to nucleotide 474; the nucleotide sequence of the full-length protein coding sequence of clone ya13_1 deposited with the ATCC under accession number 5 98630; or the nucleotide sequence of a mature protein coding sequence of clone ya13_1 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone ya13_1 deposited with the ATCC under accession number 98630.

In further preferred embodiments, the present invention provides a polynucleotide 10 encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:102 having biological activity, the fragment preferably comprising eight (more preferably, twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:102, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:102 having biological activity, the fragment comprising the amino acid 15 sequence from amino acid 64 to amino acid 73 of SEQ ID NO:102.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:101.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 20 (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:101, but excluding the poly(A) tail at the 25 3' end of SEQ ID NO:101; and
 - (ab) the nucleotide sequence of the cDNA insert of clone ya13_1 deposited with the ATCC under accession number 98630;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
 - (iii) isolating the DNA polynucleotides detected with the 30 probe(s);
- and
- (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:101, but excluding the poly(A) tail at the 3' end of SEQ ID NO:101; and

(bb) the nucleotide sequence of the cDNA insert of clone ya13_1 deposited with the ATCC under accession number 98630;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

10 (iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:101, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 15 ID NO:101 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:101, but excluding the poly(A) tail at the 3' end of SEQ ID NO:101. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:101 from nucleotide 58 to nucleotide 474, and extending contiguously from a nucleotide sequence corresponding to the 5' end 20 of said sequence of SEQ ID NO:101 from nucleotide 58 to nucleotide 474, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:101 from nucleotide 58 to nucleotide 474. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:101 from nucleotide 310 to nucleotide 474, and extending contiguously from a 25 nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:101 from nucleotide 310 to nucleotide 474, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:101 from nucleotide 310 to nucleotide 474.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 30 group consisting of:

(a) the amino acid sequence of SEQ ID NO:102;

(b) fragments of the amino acid sequence of SEQ ID NO:102, each fragment comprising eight consecutive amino acids of SEQ ID NO:102; and

(c) the amino acid sequence encoded by the cDNA insert of clone ya13_1 deposited with the ATCC under accession number 98630; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:102. In further preferred 5 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:102 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:102, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:102 having biological activity, the fragment comprising the 10 amino acid sequence from amino acid 64 to amino acid 73 of SEQ ID NO:102.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:103;
- 15 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:103 from nucleotide 76 to nucleotide 540;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:103 from nucleotide 196 to nucleotide 540;
- 20 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb37_1 deposited with the ATCC under accession number 98630;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb37_1 deposited with the ATCC under accession number 98630;
- 25 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb37_1 deposited with the ATCC under accession number 98630;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb37_1 deposited with the ATCC under accession number 98630;
- 30 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:104;

- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:104 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:104;
- 5 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

10 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:103 from nucleotide 76 to nucleotide 540; the nucleotide sequence of SEQ ID NO:103 from nucleotide 196 to nucleotide 540; the nucleotide sequence of the full-length protein coding sequence of clone yb37_1 deposited with the ATCC under accession number 98630; or the nucleotide sequence of a mature protein coding sequence of clone yb37_1
15 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yb37_1 deposited with the ATCC under accession number 98630. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of
20 SEQ ID NO:104 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:104, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:104 having biological activity, the fragment comprising the amino acid sequence from amino acid 72 to amino acid 81 of SEQ ID NO:104.

25 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:103.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - 30 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:103, but excluding the poly(A) tail at the 3' end of SEQ ID NO:103; and

(ab) the nucleotide sequence of the cDNA insert of clone yb37_1 deposited with the ATCC under accession number 98630;

5 (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

10 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:103, but excluding the poly(A) tail at the 3' end of SEQ ID NO:103; and

(bb) the nucleotide sequence of the cDNA insert of clone yb37_1 deposited with the ATCC under accession number 98630;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

20 (iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:103, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ

25 ID NO:103 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:103, but excluding the poly(A) tail at the 3' end of SEQ ID NO:103. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:103 from nucleotide 76 to nucleotide 540, and extending contiguously from a nucleotide sequence corresponding to the 5' end

30 of said sequence of SEQ ID NO:103 from nucleotide 76 to nucleotide 540, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:103 from nucleotide 76 to nucleotide 540. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID

NO:103 from nucleotide 196 to nucleotide 540, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:103 from nucleotide 196 to nucleotide 540, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:103 from nucleotide 196 to nucleotide 540.

5 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:104;
- (b) fragments of the amino acid sequence of SEQ ID NO:104, each fragment comprising eight consecutive amino acids of SEQ ID NO:104; and
- (c) the amino acid sequence encoded by the cDNA insert of clone yb37_1 deposited with the ATCC under accession number 98630;

10 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:104. In further preferred 15 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:104 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:104, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:104 having biological activity, the fragment comprising the 20 amino acid sequence from amino acid 72 to amino acid 81 of SEQ ID NO:104.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:105;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:105 from nucleotide 275 to nucleotide 415;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:105 from nucleotide 374 to nucleotide 415;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb39_1 deposited with the ATCC under accession number 98630;

- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb39_1 deposited with the ATCC under accession number 98630;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb39_1 deposited with the ATCC under accession number 98630;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb39_1 deposited with the ATCC under accession number 98630;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:106;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:106 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:106;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- 20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:105 from nucleotide 275 to nucleotide 415; the nucleotide sequence of SEQ ID NO:105 from nucleotide 374 to nucleotide 415; the nucleotide sequence of the full-length protein coding sequence of clone yb39_1 deposited with the ATCC under accession number 98630; or the nucleotide sequence of a mature protein coding sequence of clone yb39_1 deposited with the ATCC under accession number 98630. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yb39_1 deposited with the ATCC under accession number 98630. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of 30 SEQ ID NO:106 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:106, or a polynucleotide encoding a protein comprising a fragment of the amino acid

sequence of SEQ ID NO:106 having biological activity, the fragment comprising the amino acid sequence from amino acid 15 to amino acid 24 of SEQ ID NO:106.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:105.

5 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10 (aa) SEQ ID NO:105, but excluding the poly(A) tail at the 3' end of SEQ ID NO:105; and

15 (ab) the nucleotide sequence of the cDNA insert of clone yb39_1 deposited with the ATCC under accession number 98630;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

20 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

25 (ba) SEQ ID NO:105, but excluding the poly(A) tail at the 3' end of SEQ ID NO:105; and

(bb) the nucleotide sequence of the cDNA insert of clone yb39_1 deposited with the ATCC under accession number 98630;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

30 (iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:105, and

extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:105 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:105 , but excluding the poly(A) tail at the 3' end of SEQ ID NO:105. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 5 corresponding to the cDNA sequence of SEQ ID NO:105 from nucleotide 275 to nucleotide 415, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:105 from nucleotide 275 to nucleotide 415, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:105 from nucleotide 275 to nucleotide 415. Also preferably the polynucleotide isolated 10 according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:105 from nucleotide 374 to nucleotide 415, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:105 from nucleotide 374 to nucleotide 415, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:105 from nucleotide 374 to 15 nucleotide 415.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:106;
20 (b) fragments of the amino acid sequence of SEQ ID NO:106, each fragment comprising eight consecutive amino acids of SEQ ID NO:106; and

(c) the amino acid sequence encoded by the cDNA insert of clone
yb39_1 deposited with the ATCC under accession number 98630;

the protein being substantially free from other mammalian proteins. Preferably such 25 protein comprises the amino acid sequence of SEQ ID NO:106. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:106 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:106, or a protein comprising a fragment of the amino acid 30 sequence of SEQ ID NO:106 having biological activity, the fragment comprising the amino acid sequence from amino acid 15 to amino acid 24 of SEQ ID NO:106.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:107;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:107 from nucleotide 427 to nucleotide 1146;
- 5 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:107 from nucleotide 589 to nucleotide 1146;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bd577_1 deposited with the ATCC under accession number 98631;
- 10 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bd577_1 deposited with the ATCC under accession number 98631;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bd577_1 deposited with the ATCC under 15 accession number 98631;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bd577_1 deposited with the ATCC under accession number 98631;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:108;
- 20 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:108 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:108;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 25 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID 30 NO:107 from nucleotide 427 to nucleotide 1146; the nucleotide sequence of SEQ ID NO:107 from nucleotide 589 to nucleotide 1146; the nucleotide sequence of the full-length protein coding sequence of clone bd577_1 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone

bd577_1 deposited with the ATCC under accession number 98631. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bd577_1 deposited with the ATCC under accession number 98631. In further preferred embodiments, the present invention provides a 5 polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:108 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:108, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:108 having biological activity, the fragment comprising the 10 amino acid sequence from amino acid 115 to amino acid 124 of SEQ ID NO:108.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:107.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 15 (a) a process comprising the steps of:
 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 (aa) SEQ ID NO:107, but excluding the poly(A) tail at the
20 3' end of SEQ ID NO:107; and

- (ab) the nucleotide sequence of the cDNA insert of clone bd577_1 deposited with the ATCC under accession number 98631;
 (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
25 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

- (b) a process comprising the steps of:
 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 (ba) SEQ ID NO:107, but excluding the poly(A) tail at the
30 3' end of SEQ ID NO:107; and

- (bb) the nucleotide sequence of the cDNA insert of clone bd577_1 deposited with the ATCC under accession number 98631;
- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- 5 (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:107, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 10 ID NO:107 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:107, but excluding the poly(A) tail at the 3' end of SEQ ID NO:107. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:107 from nucleotide 427 to nucleotide 1146, and extending contiguously from a nucleotide sequence corresponding 15 to the 5' end of said sequence of SEQ ID NO:107 from nucleotide 427 to nucleotide 1146, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:107 from nucleotide 427 to nucleotide 1146. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:107 from nucleotide 589 to nucleotide 1146, and extending 20 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:107 from nucleotide 589 to nucleotide 1146, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:107 from nucleotide 589 to nucleotide 1146.

In other embodiments, the present invention provides a composition comprising 25 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:108;
- (b) fragments of the amino acid sequence of SEQ ID NO:108, each fragment comprising eight consecutive amino acids of SEQ ID NO:108; and
- 30 (c) the amino acid sequence encoded by the cDNA insert of clone bd577_1 deposited with the ATCC under accession number 98631;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:108. In further preferred

embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:108 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:108, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:108 having biological activity, the fragment comprising the amino acid sequence from amino acid 115 to amino acid 124 of SEQ ID NO:108.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:109;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:109 from nucleotide 95 to nucleotide 1522;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:109 from nucleotide 161 to nucleotide 1522;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bv280_3 deposited with the ATCC under accession number 98631;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bv280_3 deposited with the ATCC under accession number 98631;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bv280_3 deposited with the ATCC under accession number 98631;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bv280_3 deposited with the ATCC under accession number 98631;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:110;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:110 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:110;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

5 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:109 from nucleotide 95 to nucleotide 1522; the nucleotide sequence of SEQ ID NO:109 from nucleotide 161 to nucleotide 1522; the nucleotide sequence of the full-length protein coding sequence of clone bv280_3 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone bv280_3
10 deposited with the ATCC under accession number 98631. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bv280_3 deposited with the ATCC under accession number 98631. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of
15 SEQ ID NO:110 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:110, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:110 having biological activity, the fragment comprising the amino acid sequence from amino acid 233 to amino acid 242 of SEQ ID NO:110.

20 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:109.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:109, but excluding the poly(A) tail at the 3' end of SEQ ID NO:109; and
 - (ab) the nucleotide sequence of the cDNA insert of clone bv280_3 deposited with the ATCC under accession number 98631;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:109, but excluding the poly(A) tail at the 3' end of SEQ ID NO:109; and

10 (bb) the nucleotide sequence of the cDNA insert of clone bv280_3 deposited with the ATCC under accession number 98631;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:109, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:109 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:109, but 20 excluding the poly(A) tail at the 3' end of SEQ ID NO:109. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:109 from nucleotide 95 to nucleotide 1522, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:109 from nucleotide 95 to nucleotide 1522, to a nucleotide 25 sequence corresponding to the 3' end of said sequence of SEQ ID NO:109 from nucleotide 95 to nucleotide 1522. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:109 from nucleotide 161 to nucleotide 1522, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:109 from 30 nucleotide 161 to nucleotide 1522, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:109 from nucleotide 161 to nucleotide 1522.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:110;
 - 5 (b) fragments of the amino acid sequence of SEQ ID NO:110, each fragment comprising eight consecutive amino acids of SEQ ID NO:110; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone bv280_3 deposited with the ATCC under accession number 98631;
- the protein being substantially free from other mammalian proteins. Preferably such
- 10 protein comprises the amino acid sequence of SEQ ID NO:110. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:110 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:110, or a protein comprising a fragment of the amino acid
- 15 sequence of SEQ ID NO:110 having biological activity, the fragment comprising the amino acid sequence from amino acid 233 to amino acid 242 of SEQ ID NO:110.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:111;
- 20 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:111 from nucleotide 286 to nucleotide 552;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:111 from nucleotide 475 to nucleotide 552;
- 25 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone co315_3 deposited with the ATCC under accession number 98631;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone co315_3 deposited with the ATCC under accession number 98631;
- 30 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone co315_3 deposited with the ATCC under accession number 98631;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone co315_3 deposited with the ATCC under accession number 98631;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:112;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:112 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:112;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
15 NO:111 from nucleotide 286 to nucleotide 552; the nucleotide sequence of SEQ ID NO:111 from nucleotide 475 to nucleotide 552; the nucleotide sequence of the full-length protein coding sequence of clone co315_3 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone co315_3 deposited with the ATCC under accession number 98631. In other preferred
20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone co315_3 deposited with the ATCC under accession number 98631. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:112 having biological activity, the fragment preferably comprising eight
25 (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:112, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:112 having biological activity, the fragment comprising the amino acid sequence from amino acid 39 to amino acid 48 of SEQ ID NO:112.

Other embodiments provide the gene corresponding to the cDNA sequence of
30 SEQ ID NO:111.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:111, but excluding the poly(A) tail at the 3' end of SEQ ID NO:111; and

(ab) the nucleotide sequence of the cDNA insert of clone co315_3 deposited with the ATCC under accession number 98631;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:111, but excluding the poly(A) tail at the 3' end of SEQ ID NO:111; and

(bb) the nucleotide sequence of the cDNA insert of clone co315_3 deposited with the ATCC under accession number 98631;

20 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:111, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:111 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:111, but excluding the poly(A) tail at the 3' end of SEQ ID NO:111. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:111 from nucleotide 286 to nucleotide 552, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:111 from nucleotide 286 to nucleotide 552,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:111 from nucleotide 286 to nucleotide 552. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:111 from nucleotide 475 to nucleotide 552, and extending 5 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:111 from nucleotide 475 to nucleotide 552, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:111 from nucleotide 475 to nucleotide 552.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:112;
- (b) fragments of the amino acid sequence of SEQ ID NO:112, each fragment comprising eight consecutive amino acids of SEQ ID NO:112; and
- 15 (c) the amino acid sequence encoded by the cDNA insert of clone co315_3 deposited with the ATCC under accession number 98631;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:112. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 20 amino acid sequence of SEQ ID NO:112 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:112, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:112 having biological activity, the fragment comprising the amino acid sequence from amino acid 39 to amino acid 48 of SEQ ID NO:112.

25 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:113;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:113 from nucleotide 1682 to nucleotide 1963;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ij226_6 deposited with the ATCC under accession number 98631;

- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ij226_6 deposited with the ATCC under accession number 98631;
- 5 (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ij226_6 deposited with the ATCC under accession number 98631;
- (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ij226_6 deposited with the ATCC under accession number 98631;
- 10 (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:114;
- (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:114 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:114;
- 15 (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).
- 20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:113 from nucleotide 1682 to nucleotide 1963; the nucleotide sequence of the full-length protein coding sequence of clone ij226_6 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone ij226_6 deposited with the ATCC under accession number 98631. In other preferred
25 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone ij226_6 deposited with the ATCC under accession number 98631.
- In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:114 having biological activity, the fragment preferably comprising eight (more preferably
30 twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:114, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:114 having biological activity, the fragment comprising the amino acid sequence from amino acid 42 to amino acid 51 of SEQ ID NO:114.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:113.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 5 (a) a process comprising the steps of:
 (i) preparing one or more polynucleotide probes that hybridize
 in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group
 consisting of:
 (aa) SEQ ID NO:113, but excluding the poly(A) tail at the
10 3' end of SEQ ID NO:113; and
 (ab) the nucleotide sequence of the cDNA insert of clone
 ij226_6 deposited with the ATCC under accession number 98631;
 (ii) hybridizing said probe(s) to human genomic DNA in
 conditions at least as stringent as 4X SSC at 65 degrees C; and
15 (iii) isolating the DNA polynucleotides detected with the
 probe(s);
 and
 (b) a process comprising the steps of:
 (i) preparing one or more polynucleotide primers that
20 hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from
 the group consisting of:
 (ba) SEQ ID NO:113, but excluding the poly(A) tail at the
 3' end of SEQ ID NO:113; and
 (bb) the nucleotide sequence of the cDNA insert of clone
 ij226_6 deposited with the ATCC under accession number 98631;
 (ii) hybridizing said primer(s) to human genomic DNA in
 conditions at least as stringent as 4X SSC at 65 degrees C;
 (iii) amplifying human DNA sequences; and
 (iv) isolating the polynucleotide products of step (b)(iii).
30 Preferably the polynucleotide isolated according to the above process comprises a
 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:113, and
 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ
 ID NO:113 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:113, but

excluding the poly(A) tail at the 3' end of SEQ ID NO:113. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:113 from nucleotide 1682 to nucleotide 1963, and extending contiguously from a nucleotide sequence corresponding 5 to the 5' end of said sequence of SEQ ID NO:113 from nucleotide 1682 to nucleotide 1963, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:113 from nucleotide 1682 to nucleotide 1963.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:114;
- (b) fragments of the amino acid sequence of SEQ ID NO:114, each fragment comprising eight consecutive amino acids of SEQ ID NO:114; and
- (c) the amino acid sequence encoded by the cDNA insert of clone 15 ij226_6 deposited with the ATCC under accession number 98631;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:114. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:114 having biological activity, the fragment 20 preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:114, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:114 having biological activity, the fragment comprising the amino acid sequence from amino acid 42 to amino acid 51 of SEQ ID NO:114.

In one embodiment, the present invention provides a composition comprising an 25 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:115;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:115 from nucleotide 1137 to nucleotide 1346;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nf443_1 deposited with the ATCC under 30 accession number 98631;

(d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nf443_1 deposited with the ATCC under accession number 98631;

5 (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nf443_1 deposited with the ATCC under accession number 98631;

(f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nf443_1 deposited with the ATCC under accession number 98631;

10 (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:116;

(h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:116 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:116;

15 (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;

(j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and

(k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:115 from nucleotide 1137 to nucleotide 1346; the nucleotide sequence of the full-length protein coding sequence of clone nf443_1 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone nf443_1 deposited with the ATCC under accession number 98631. In other
25 preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nf443_1 deposited with the ATCC under accession number 98631. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:116 having biological activity, the fragment preferably comprising eight
30 (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:116, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:116 having biological activity, the fragment comprising the amino acid sequence from amino acid 30 to amino acid 39 of SEQ ID NO:116.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:115.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

5

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10

(aa) SEQ ID NO:115, but excluding the poly(A) tail at the 3' end of SEQ ID NO:115; and

15

(ab) the nucleotide sequence of the cDNA insert of clone nf443_1 deposited with the ATCC under accession number 98631;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

20

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:115, but excluding the poly(A) tail at the 3' end of SEQ ID NO:115; and

25

(bb) the nucleotide sequence of the cDNA insert of clone nf443_1 deposited with the ATCC under accession number 98631;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

30

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:115, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:115 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:115, but

excluding the poly(A) tail at the 3' end of SEQ ID NO:115. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:115 from nucleotide 1137 to nucleotide 1346, and extending contiguously from a nucleotide sequence corresponding 5 to the 5' end of said sequence of SEQ ID NO:115 from nucleotide 1137 to nucleotide 1346, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:115 from nucleotide 1137 to nucleotide 1346.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 10 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:116;
- (b) fragments of the amino acid sequence of SEQ ID NO:116, each fragment comprising eight consecutive amino acids of SEQ ID NO:116; and
- (c) the amino acid sequence encoded by the cDNA insert of clone

15 nf443_1 deposited with the ATCC under accession number 98631;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:116. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:116 having biological activity, the fragment 20 preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:116, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:116 having biological activity, the fragment comprising the amino acid sequence from amino acid 30 to amino acid 39 of SEQ ID NO:116.

In one embodiment, the present invention provides a composition comprising an 25 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:117;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:117 from nucleotide 308 to nucleotide 634;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nt429_1 deposited with the ATCC under 30 accession number 98631;

(d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nt429_1 deposited with the ATCC under accession number 98631;

5 (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nt429_1 deposited with the ATCC under accession number 98631;

(f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nt429_1 deposited with the ATCC under accession number 98631;

10 (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:118;

(h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:118 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:118;

15 (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;

(j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and

(k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:117 from nucleotide 308 to nucleotide 634; the nucleotide sequence of the full-length protein coding sequence of clone nt429_1 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone nt429_1 deposited with the ATCC under accession number 98631. In other preferred 25 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nt429_1 deposited with the ATCC under accession number 98631. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:118 from amino acid 1 to amino acid 47. In further preferred embodiments, the present 30 invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:118 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:118, or a polynucleotide encoding a protein comprising a

fragment of the amino acid sequence of SEQ ID NO:118 having biological activity, the fragment comprising the amino acid sequence from amino acid 49 to amino acid 58 of SEQ ID NO:118.

Other embodiments provide the gene corresponding to the cDNA sequence of
5 SEQ ID NO:117.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize

10 in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:117, but excluding the poly(A) tail at the 3' end of SEQ ID NO:117; and

15 (ab) the nucleotide sequence of the cDNA insert of clone nt429_1 deposited with the ATCC under accession number 98631;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

20 and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

25 (ba) SEQ ID NO:117, but excluding the poly(A) tail at the 3' end of SEQ ID NO:117; and

(bb) the nucleotide sequence of the cDNA insert of clone nt429_1 deposited with the ATCC under accession number 98631;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:117, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:117 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:117, but

5 excluding the poly(A) tail at the 3' end of SEQ ID NO:117. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:117 from nucleotide 308 to nucleotide 634, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:117 from nucleotide 308 to nucleotide 634,

10 to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:117 from nucleotide 308 to nucleotide 634.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 15 (a) the amino acid sequence of SEQ ID NO:118;
- (b) the amino acid sequence of SEQ ID NO:118 from amino acid 1 to amino acid 47;
- (c) fragments of the amino acid sequence of SEQ ID NO:118, each fragment comprising eight consecutive amino acids of SEQ ID NO:118; and
- 20 (d) the amino acid sequence encoded by the cDNA insert of clone nt429_1 deposited with the ATCC under accession number 98631;
- the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:118 or the amino acid sequence of SEQ ID NO:118 from amino acid 1 to amino acid 47. In further preferred embodiments,
- 25 the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:118 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:118, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:118 having biological activity, the fragment comprising the amino acid sequence from amino acid 49 to amino acid 58 of SEQ ID NO:118.
- 30

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:119;
 - (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:119 from nucleotide 104 to nucleotide 652;
 - 5 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:119 from nucleotide 377 to nucleotide 652;
 - (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pe503_1 deposited with the ATCC under accession number 98631;
 - 10 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pe503_1 deposited with the ATCC under accession number 98631;
 - (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pe503_1 deposited with the ATCC under accession number 98631;
 - 15 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pe503_1 deposited with the ATCC under accession number 98631;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:120;
 - 20 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:120 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:120;
 - (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - 25 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
 - (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:119 from nucleotide 104 to nucleotide 652; the nucleotide sequence of SEQ ID NO:119 from nucleotide 377 to nucleotide 652; the nucleotide sequence of the full-length protein coding sequence of clone pe503_1 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone pe503_1

deposited with the ATCC under accession number 98631. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pe503_1 deposited with the ATCC under accession number 98631. In yet other preferred embodiments, the present invention provides a 5 polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:120 from amino acid 69 to amino acid 125. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:120 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive 10 amino acids of SEQ ID NO:120, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:120 having biological activity, the fragment comprising the amino acid sequence from amino acid 86 to amino acid 95 of SEQ ID NO:120.

Other embodiments provide the gene corresponding to the cDNA sequence of 15 SEQ ID NO:119.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:119, but excluding the poly(A) tail at the 3' end of SEQ ID NO:119; and
 - (ab) the nucleotide sequence of the cDNA insert of clone pe503_1 deposited with the ATCC under accession number 98631;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
 - (iii) isolating the DNA polynucleotides detected with the probe(s);
- 30 and
 - (b) a process comprising the steps of:

- (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (ba) SEQ ID NO:119, but excluding the poly(A) tail at the 5' end of SEQ ID NO:119; and
 - (bb) the nucleotide sequence of the cDNA insert of clone pe503_1 deposited with the ATCC under accession number 98631;
- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:119, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:119 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:119, but excluding the poly(A) tail at the 3' end of SEQ ID NO:119. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:119 from nucleotide 104 to nucleotide 652, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:119 from nucleotide 104 to nucleotide 652, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:119 from nucleotide 104 to nucleotide 652. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:119 from nucleotide 377 to nucleotide 652, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:119 from nucleotide 377 to nucleotide 652, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:119 from nucleotide 377 to nucleotide 652.

In other embodiments, the present invention provides a composition comprising 30 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:120;

- (b) the amino acid sequence of SEQ ID NO:120 from amino acid 69 to amino acid 125;
- (c) fragments of the amino acid sequence of SEQ ID NO:120, each fragment comprising eight consecutive amino acids of SEQ ID NO:120; and
- 5 (d) the amino acid sequence encoded by the cDNA insert of clone pe503_1 deposited with the ATCC under accession number 98631; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:120 or the amino acid sequence of SEQ ID NO:120 from amino acid 69 to amino acid 125. In further preferred 10 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:120 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:120, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:120 having biological activity, the fragment comprising the 15 amino acid sequence from amino acid 86 to amino acid 95 of SEQ ID NO:120.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:121;
- 20 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:121 from nucleotide 23 to nucleotide 442;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:121 from nucleotide 224 to nucleotide 442;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pe834_6 deposited with the ATCC under 25 accession number 98631;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pe834_6 deposited with the ATCC under accession number 98631;
- 30 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pe834_6 deposited with the ATCC under accession number 98631;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pe834_6 deposited with the ATCC under accession number 98631;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:122;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:122 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:122;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
15 NO:121 from nucleotide 23 to nucleotide 442; the nucleotide sequence of SEQ ID NO:121 from nucleotide 224 to nucleotide 442; the nucleotide sequence of the full-length protein coding sequence of clone pe834_6 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone pe834_6 deposited with the ATCC under accession number 98631. In other preferred
20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pe834_6 deposited with the ATCC under accession number 98631. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:122 having biological activity, the fragment preferably comprising eight
25 (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:122, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:122 having biological activity, the fragment comprising the amino acid sequence from amino acid 65 to amino acid 74 of SEQ ID NO:122.

Other embodiments provide the gene corresponding to the cDNA sequence of
30 SEQ ID NO:121.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:121, but excluding the poly(A) tail at the 3' end of SEQ ID NO:121; and

(ab) the nucleotide sequence of the cDNA insert of clone pe834_6 deposited with the ATCC under accession number 98631;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:121, but excluding the poly(A) tail at the 3' end of SEQ ID NO:121; and

20 (bb) the nucleotide sequence of the cDNA insert of clone pe834_6 deposited with the ATCC under accession number 98631;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:121, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:121 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:121, but excluding the poly(A) tail at the 3' end of SEQ ID NO:121. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:121 from nucleotide 23 to nucleotide 442, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:121 from nucleotide 23 to nucleotide 442, to a nucleotide

sequence corresponding to the 3' end of said sequence of SEQ ID NO:121 from nucleotide 23 to nucleotide 442.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 5 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:122;
- (b) fragments of the amino acid sequence of SEQ ID NO:122, each fragment comprising eight consecutive amino acids of SEQ ID NO:122; and
- (c) the amino acid sequence encoded by the cDNA insert of clone

10 pe834_6 deposited with the ATCC under accession number 98631;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:122. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:122 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:122, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:122 having biological activity, the fragment comprising the amino acid sequence from amino acid 65 to amino acid 74 of SEQ ID NO:122.

In one embodiment, the present invention provides a composition comprising an 20 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:123;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:123 from nucleotide 98 to nucleotide 265;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:123 from nucleotide 152 to nucleotide 265;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ya10_1 deposited with the ATCC under accession number 98631;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ya10_1 deposited with the ATCC under accession number 98631;

- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ya10_1 deposited with the ATCC under accession number 98631;
 - 5 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ya10_1 deposited with the ATCC under accession number 98631;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:124;
 - 10 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:124 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:124;
 - (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 15 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:123 from nucleotide 98 to nucleotide 265; the nucleotide sequence of SEQ ID NO:123 from nucleotide 152 to nucleotide 265; the nucleotide sequence of the full-length protein coding sequence of clone ya10_1 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone ya10_1 deposited with the ATCC under accession number 98631. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone ya10_1 deposited with the ATCC under accession number 98631.
- 20 25 In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:124 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:124, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:124 having biological activity, the fragment comprising the amino acid sequence from amino acid 22 to amino acid 31 of SEQ ID NO:124.
- 30 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:123.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

5 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:123, but excluding the poly(A) tail at the 3' end of SEQ ID NO:123; and

10 (ab) the nucleotide sequence of the cDNA insert of clone ya10_1 deposited with the ATCC under accession number 98631;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

15 and

(b) a process comprising the steps of:

20 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:123, but excluding the poly(A) tail at the 3' end of SEQ ID NO:123; and

(bb) the nucleotide sequence of the cDNA insert of clone ya10_1 deposited with the ATCC under accession number 98631;

25 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:123, and 30 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:123 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:123, but excluding the poly(A) tail at the 3' end of SEQ ID NO:123. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence

corresponding to the cDNA sequence of SEQ ID NO:123 from nucleotide 98 to nucleotide 265, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:123 from nucleotide 98 to nucleotide 265, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:123 from nucleotide 5 98 to nucleotide 265. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:123 from nucleotide 152 to nucleotide 265, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:123 from nucleotide 152 to nucleotide 265, to a nucleotide sequence corresponding to the 3' end of 10 said sequence of SEQ ID NO:123 from nucleotide 152 to nucleotide 265.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:124;
- 15 (b) fragments of the amino acid sequence of SEQ ID NO:124, each fragment comprising eight consecutive amino acids of SEQ ID NO:124; and
- (c) the amino acid sequence encoded by the cDNA insert of clone ya10_1 deposited with the ATCC under accession number 98631;

the protein being substantially free from other mammalian proteins. Preferably such 20 protein comprises the amino acid sequence of SEQ ID NO:124. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:124 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:124, or a protein comprising a fragment of the amino acid 25 sequence of SEQ ID NO:124 having biological activity, the fragment comprising the amino acid sequence from amino acid 22 to amino acid 31 of SEQ ID NO:124.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:125;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:125 from nucleotide 176 to nucleotide 583;

- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb40_1 deposited with the ATCC under accession number 98631;
- 5 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb40_1 deposited with the ATCC under accession number 98631;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb40_1 deposited with the ATCC under accession number 98631;
- 10 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb40_1 deposited with the ATCC under accession number 98631;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:126;
- 15 (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:126 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:126;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- 20 (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:125 from nucleotide 176 to nucleotide 583; the nucleotide sequence of the full-length protein coding sequence of clone yb40_1 deposited with the ATCC under accession number 98631; or the nucleotide sequence of a mature protein coding sequence of clone yb40_1 deposited with the ATCC under accession number 98631. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yb40_1 deposited with the ATCC under accession number 98631. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:126 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID

NO:126, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:126 having biological activity, the fragment comprising the amino acid sequence from amino acid 63 to amino acid 72 of SEQ ID NO:126.

Other embodiments provide the gene corresponding to the cDNA sequence of
5 SEQ ID NO:125.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

10 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:125, but excluding the poly(A) tail at the 3' end of SEQ ID NO:125; and

15 (ab) the nucleotide sequence of the cDNA insert of clone yb40_1 deposited with the ATCC under accession number 98631;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

20 and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:125, but excluding the poly(A) tail at the 3' end of SEQ ID NO:125; and

(bb) the nucleotide sequence of the cDNA insert of clone yb40_1 deposited with the ATCC under accession number 98631;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:125, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:125 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:125, but

5 excluding the poly(A) tail at the 3' end of SEQ ID NO:125. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:125 from nucleotide 176 to nucleotide 583, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:125 from nucleotide 176 to nucleotide 583,

10 to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:125 from nucleotide 176 to nucleotide 583.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 15 (a) the amino acid sequence of SEQ ID NO:126;
- (b) fragments of the amino acid sequence of SEQ ID NO:126, each fragment comprising eight consecutive amino acids of SEQ ID NO:126; and
- (c) the amino acid sequence encoded by the cDNA insert of clone yb40_1 deposited with the ATCC under accession number 98631;
- 20 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:126. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:126 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive
- 25 amino acids of SEQ ID NO:126, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:126 having biological activity, the fragment comprising the amino acid sequence from amino acid 63 to amino acid 72 of SEQ ID NO:126.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 30 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:127;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:127 from nucleotide 734 to nucleotide 1873;

- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:127 from nucleotide 1403 to nucleotide 1873;
 - (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone cs756_2 deposited with the ATCC under accession number 98636;
 - 5 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone cs756_2 deposited with the ATCC under accession number 98636;
 - (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone cs756_2 deposited with the ATCC under accession number 98636;
 - 10 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone cs756_2 deposited with the ATCC under accession number 98636;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:128;
 - 15 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:128 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:128;
 - (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - 20 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
 - (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- 25 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:127 from nucleotide 734 to nucleotide 1873; the nucleotide sequence of SEQ ID NO:127 from nucleotide 1403 to nucleotide 1873; the nucleotide sequence of the full-length protein coding sequence of clone cs756_2 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence
- 30 of clone cs756_2 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone cs756_2 deposited with the ATCC under accession number 98636. In further preferred embodiments, the present invention provides a

polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:128 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:128, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:128 having biological activity, the fragment comprising the amino acid sequence from amino acid 185 to amino acid 194 of SEQ ID NO:128.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:127.

Further embodiments of the invention provide isolated polynucleotides produced
10 according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

15 (aa) SEQ ID NO:127, but excluding the poly(A) tail at the 3' end of SEQ ID NO:127; and

(ab) the nucleotide sequence of the cDNA insert of clone cs756_2 deposited with the ATCC under accession number 98636;

20 (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:127, but excluding the poly(A) tail at the 3' end of SEQ ID NO:127; and

30 (bb) the nucleotide sequence of the cDNA insert of clone cs756_2 deposited with the ATCC under accession number 98636;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:127, and

5 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:127 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:127, but excluding the poly(A) tail at the 3' end of SEQ ID NO:127. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:127 from nucleotide 734 to

10 nucleotide 1873, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:127 from nucleotide 734 to nucleotide 1873, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:127 from nucleotide 734 to nucleotide 1873. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the

15 cDNA sequence of SEQ ID NO:127 from nucleotide 1403 to nucleotide 1873, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:127 from nucleotide 1403 to nucleotide 1873, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:127 from nucleotide 1403 to nucleotide 1873.

20 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:128;
- (b) fragments of the amino acid sequence of SEQ ID NO:128, each

25 fragment comprising eight consecutive amino acids of SEQ ID NO:128; and

- (c) the amino acid sequence encoded by the cDNA insert of clone cs756_2 deposited with the ATCC under accession number 98636;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:128. In further preferred

30 embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:128 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:128, or a protein comprising a fragment of the amino acid

sequence of SEQ ID NO:128 having biological activity, the fragment comprising the amino acid sequence from amino acid 185 to amino acid 194 of SEQ ID NO:128.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 5 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:129;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:129 from nucleotide 26 to nucleotide 1738;
- 10 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:129 from nucleotide 140 to nucleotide 1738;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ew150_1 deposited with the ATCC under accession number 98636;
- 15 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ew150_1 deposited with the ATCC under accession number 98636;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ew150_1 deposited with the ATCC under accession number 98636;
- 20 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ew150_1 deposited with the ATCC under accession number 98636;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:130;
- 25 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:130 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:130;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 30 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:129 from nucleotide 26 to nucleotide 1738; the nucleotide sequence of SEQ ID NO:129 from nucleotide 140 to nucleotide 1738; the nucleotide sequence of the full-length protein coding sequence of clone ew150_1 deposited with the ATCC under accession number 5 98636; or the nucleotide sequence of a mature protein coding sequence of clone ew150_1 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone ew150_1 deposited with the ATCC under accession number 98636. In yet other preferred embodiments, the present invention provides a 10 polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:130 from amino acid 108 to amino acid 166. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:130 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive 15 amino acids of SEQ ID NO:130, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:130 having biological activity, the fragment comprising the amino acid sequence from amino acid 280 to amino acid 289 of SEQ ID NO:130.

Other embodiments provide the gene corresponding to the cDNA sequence of 20 SEQ ID NO:129.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize 25 in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:129, but excluding the poly(A) tail at the 3' end of SEQ ID NO:129; and
 - (ab) the nucleotide sequence of the cDNA insert of clone ew150_1 deposited with the ATCC under accession number 98636;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:129, but excluding the poly(A) tail at the 3' end of SEQ ID NO:129; and

10 (bb) the nucleotide sequence of the cDNA insert of clone ew150_1 deposited with the ATCC under accession number 98636;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:129, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:129 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:129, but 20 excluding the poly(A) tail at the 3' end of SEQ ID NO:129. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:129 from nucleotide 26 to nucleotide 1738, and extending contiguously from a nucleotide sequence corresponding to the 5' end 25 of said sequence of SEQ ID NO:129 from nucleotide 26 to nucleotide 1738, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:129 from nucleotide 26 to nucleotide 1738. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:129 from nucleotide 140 to nucleotide 1738, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:129 from 30 nucleotide 140 to nucleotide 1738, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:129 from nucleotide 140 to nucleotide 1738.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:130;
- 5 (b) the amino acid sequence of SEQ ID NO:130 from amino acid 108 to amino acid 166;
- (c) fragments of the amino acid sequence of SEQ ID NO:130, each fragment comprising eight consecutive amino acids of SEQ ID NO:130; and
- 10 (d) the amino acid sequence encoded by the cDNA insert of clone ew150_1 deposited with the ATCC under accession number 98636; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:130 or the amino acid sequence of SEQ ID NO:130 from amino acid 108 to amino acid 166. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:130 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:130, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:130 having biological activity, the fragment comprising the amino acid sequence from amino acid 280 to amino acid 289 of SEQ ID NO:130.

20 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:131;
- 25 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:131 from nucleotide 1101 to nucleotide 1910;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:131 from nucleotide 1260 to nucleotide 1910;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone gg894_13 deposited with the ATCC under accession number 98636;
- 30 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone gg894_13 deposited with the ATCC under accession number 98636;

- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone gg894_13 deposited with the ATCC under accession number 98636;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone gg894_13 deposited with the ATCC under accession number 98636;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:132;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:132 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:132;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:131 from nucleotide 1101 to nucleotide 1910; the nucleotide sequence of SEQ ID NO:131 from nucleotide 1260 to nucleotide 1910; the nucleotide sequence of the full-length protein coding sequence of clone gg894_13 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone gg894_13 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone gg894_13 deposited with the ATCC under accession number 98636. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:132 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:132, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:132 having biological activity, the fragment comprising the amino acid sequence from amino acid 130 to amino acid 139 of SEQ ID NO:132.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:131.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

5 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:131, but excluding the poly(A) tail at the 3' end of SEQ ID NO:131; and

10 (ab) the nucleotide sequence of the cDNA insert of clone gg894_13 deposited with the ATCC under accession number 98636;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

15 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

20 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:131, but excluding the poly(A) tail at the 3' end of SEQ ID NO:131; and

25 (bb) the nucleotide sequence of the cDNA insert of clone gg894_13 deposited with the ATCC under accession number 98636;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

30 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:131, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:131 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:131, but

- excluding the poly(A) tail at the 3' end of SEQ ID NO:131. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:131 from nucleotide 1101 to nucleotide 1910, and extending contiguously from a nucleotide sequence corresponding
5 to the 5' end of said sequence of SEQ ID NO:131 from nucleotide 1101 to nucleotide 1910, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:131 from nucleotide 1101 to nucleotide 1910. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:131 from nucleotide 1260 to nucleotide 1910, and
10 extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:131 from nucleotide 1260 to nucleotide 1910, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:131 from nucleotide 1260 to nucleotide 1910.

In other embodiments, the present invention provides a composition comprising
15 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:132;
- (b) fragments of the amino acid sequence of SEQ ID NO:132, each fragment comprising eight consecutive amino acids of SEQ ID NO:132; and
20
- (c) the amino acid sequence encoded by the cDNA insert of clone gg894_13 deposited with the ATCC under accession number 98636;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:132. In further preferred embodiments, the present invention provides a protein comprising a fragment of the
25 amino acid sequence of SEQ ID NO:132 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:132, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:132 having biological activity, the fragment comprising the amino acid sequence from amino acid 130 to amino acid 139 of SEQ ID NO:132.

30 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:133;

- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:133 from nucleotide 452 to nucleotide 1102;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone it217_2 deposited with the ATCC under accession number 98636;
- (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone it217_2 deposited with the ATCC under accession number 98636;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone it217_2 deposited with the ATCC under accession number 98636;
- (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone it217_2 deposited with the ATCC under accession number 98636;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:134;
- (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:134 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:134;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).
- 25 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:133 from nucleotide 452 to nucleotide 1102; the nucleotide sequence of the full-length protein coding sequence of clone it217_2 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone it217_2 deposited with the ATCC under accession number 98636. In other preferred 30 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone it217_2 deposited with the ATCC under accession number 98636. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of

SEQ ID NO:134 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:134, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:134 having biological activity, the fragment comprising the 5 amino acid sequence from amino acid 103 to amino acid 112 of SEQ ID NO:134.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:133.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 10 (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
(aa) SEQ ID NO:133, but excluding the poly(A) tail at the
15 3' end of SEQ ID NO:133; and
(ab) the nucleotide sequence of the cDNA insert of clone it217_2 deposited with the ATCC under accession number 98636;
(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
20 (iii) isolating the DNA polynucleotides detected with the probe(s);
and
(b) a process comprising the steps of:
25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
(ba) SEQ ID NO:133, but excluding the poly(A) tail at the
3' end of SEQ ID NO:133; and
(bb) the nucleotide sequence of the cDNA insert of clone it217_2 deposited with the ATCC under accession number 98636;
30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:133, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 5 ID NO:133 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:133, but excluding the poly(A) tail at the 3' end of SEQ ID NO:133. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:133 from nucleotide 452 to nucleotide 1102, and extending contiguously from a nucleotide sequence corresponding 10 to the 5' end of said sequence of SEQ ID NO:133 from nucleotide 452 to nucleotide 1102, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:133 from nucleotide 452 to nucleotide 1102.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the 15 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:134;
- (b) fragments of the amino acid sequence of SEQ ID NO:134, each fragment comprising eight consecutive amino acids of SEQ ID NO:134; and
- (c) the amino acid sequence encoded by the cDNA insert of clone 20 it217_2 deposited with the ATCC under accession number 98636;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:134. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:134 having biological activity, the fragment 25 preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:134, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:134 having biological activity, the fragment comprising the amino acid sequence from amino acid 103 to amino acid 112 of SEQ ID NO:134.

In one embodiment, the present invention provides a composition comprising an 30 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:135;

- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:135 from nucleotide 127 to nucleotide 387;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:135 from nucleotide 172 to nucleotide 387;
- 5 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ml235_2 deposited with the ATCC under accession number 98636;
- 10 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ml235_2 deposited with the ATCC under accession number 98636;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ml235_2 deposited with the ATCC under accession number 98636;
- 15 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ml235_2 deposited with the ATCC under accession number 98636;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:136;
- 20 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:136 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:136;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 25 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:135 from nucleotide 127 to nucleotide 387; the nucleotide sequence of SEQ ID NO:135 from nucleotide 172 to nucleotide 387; the nucleotide sequence of the full-length protein coding sequence of clone ml235_2 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone ml235_2 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by

the cDNA insert of clone ml235_2 deposited with the ATCC under accession number 98636. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:136 having biological activity, the fragment preferably comprising eight 5 (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:136, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:136 having biological activity, the fragment comprising the amino acid sequence from amino acid 38 to amino acid 47 of SEQ ID NO:136.

Other embodiments provide the gene corresponding to the cDNA sequence of 10 SEQ ID NO:135.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:135, but excluding the poly(A) tail at the 3' end of SEQ ID NO:135; and
 - (ab) the nucleotide sequence of the cDNA insert of clone ml235_2 deposited with the ATCC under accession number 98636;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
 - (iii) isolating the DNA polynucleotides detected with the probe(s);
- 25 and
 - (b) a process comprising the steps of:
 - (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (ba) SEQ ID NO:135, but excluding the poly(A) tail at the 3' end of SEQ ID NO:135; and
 - (bb) the nucleotide sequence of the cDNA insert of clone ml235_2 deposited with the ATCC under accession number 98636;

- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).
- 5 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:135, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:135 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:135, but excluding the poly(A) tail at the 3' end of SEQ ID NO:135. Also preferably the
- 10 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:135 from nucleotide 127 to nucleotide 387, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:135 from nucleotide 127 to nucleotide 387, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:135
- 15 from nucleotide 127 to nucleotide 387. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:135 from nucleotide 172 to nucleotide 387, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:135 from nucleotide 172 to nucleotide 387, to a nucleotide sequence
- 20 corresponding to the 3' end of said sequence of SEQ ID NO:135 from nucleotide 172 to nucleotide 387.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 25 (a) the amino acid sequence of SEQ ID NO:136;
- (b) fragments of the amino acid sequence of SEQ ID NO:136, each fragment comprising eight consecutive amino acids of SEQ ID NO:136; and
- (c) the amino acid sequence encoded by the cDNA insert of clone ml235_2 deposited with the ATCC under accession number 98636;
- 30 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:136. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:136 having biological activity, the fragment

preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:136, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:136 having biological activity, the fragment comprising the amino acid sequence from amino acid 38 to amino acid 47 of SEQ ID NO:136.

5 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:137;
- 10 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:137 from nucleotide 147 to nucleotide 1163;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:137 from nucleotide 273 to nucleotide 1163;
- 15 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone mt24_2 deposited with the ATCC under accession number 98636;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone mt24_2 deposited with the ATCC under accession number 98636;
- 20 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone mt24_2 deposited with the ATCC under accession number 98636;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone mt24_2 deposited with the ATCC under accession number 98636;
- 25 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:138;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:138 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:138;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of
30 (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:137 from nucleotide 147 to nucleotide 1163; the nucleotide sequence of SEQ ID NO:137 from nucleotide 273 to nucleotide 1163; the nucleotide sequence of the full-length protein coding sequence of clone mt24_2 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone mt24_2 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone mt24_2 deposited with the ATCC under accession number 98636. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:138 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:138, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:138 having biological activity, the fragment comprising the amino acid sequence from amino acid 164 to amino acid 173 of SEQ ID NO:138.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:137.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:137, but excluding the poly(A) tail at the 3' end of SEQ ID NO:137; and

(ab) the nucleotide sequence of the cDNA insert of clone mt24_2 deposited with the ATCC under accession number 98636;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:137, but excluding the poly(A) tail at the 3' end of SEQ ID NO:137; and

(bb) the nucleotide sequence of the cDNA insert of clone mt24_2 deposited with the ATCC under accession number 98636;

10 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a 15 nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:137, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:137 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:137, but excluding the poly(A) tail at the 3' end of SEQ ID NO:137. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence 20 corresponding to the cDNA sequence of SEQ ID NO:137 from nucleotide 147 to nucleotide 1163, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:137 from nucleotide 147 to nucleotide 1163, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:137 from nucleotide 147 to nucleotide 1163. Also preferably the polynucleotide isolated 25 according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:137 from nucleotide 273 to nucleotide 1163, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:137 from nucleotide 273 to nucleotide 1163, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:137 from nucleotide 273 to 30 nucleotide 1163.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:138;
(b) fragments of the amino acid sequence of SEQ ID NO:138, each fragment comprising eight consecutive amino acids of SEQ ID NO:138; and
(c) the amino acid sequence encoded by the cDNA insert of clone 5 mt24_2 deposited with the ATCC under accession number 98636; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:138. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:138 having biological activity, the fragment 10 preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:138, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:138 having biological activity, the fragment comprising the amino acid sequence from amino acid 164 to amino acid 173 of SEQ ID NO:138.

In one embodiment, the present invention provides a composition comprising an 15 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:139;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:139 from nucleotide 320 to nucleotide 1681;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:139 from nucleotide 437 to nucleotide 1681;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pe584_2 deposited with the ATCC under accession number 98636;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pe584_2 deposited with the ATCC under accession number 98636;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pe584_2 deposited with the ATCC under accession number 98636;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pe584_2 deposited with the ATCC under accession number 98636;

- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:140;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:140 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:140;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 10 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:139 from nucleotide 320 to nucleotide 1681; the nucleotide sequence of SEQ ID NO:139 from nucleotide 437 to nucleotide 1681; the nucleotide sequence of the full-length 15 protein coding sequence of clone pe584_2 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone pe584_2 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pe584_2 deposited with the ATCC under accession number 20 98636. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:140 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:140, or a polynucleotide encoding a protein comprising a fragment of the amino acid 25 sequence of SEQ ID NO:140 having biological activity, the fragment comprising the amino acid sequence from amino acid 222 to amino acid 231 of SEQ ID NO:140.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:139.

Further embodiments of the invention provide isolated polynucleotides produced 30 according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:139, but excluding the poly(A) tail at the 3' end of SEQ ID NO:139; and

(ab) the nucleotide sequence of the cDNA insert of clone pe584_2 deposited with the ATCC under accession number 98636;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:139, but excluding the poly(A) tail at the 3' end of SEQ ID NO:139; and

(bb) the nucleotide sequence of the cDNA insert of clone pe584_2 deposited with the ATCC under accession number 98636;

20 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:139, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:139 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:139, but excluding the poly(A) tail at the 3' end of SEQ ID NO:139. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:139 from nucleotide 320 to nucleotide 1681, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:139 from nucleotide 320 to nucleotide 1681,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:139 from nucleotide 320 to nucleotide 1681. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:139 from nucleotide 437 to nucleotide 1681, and extending 5 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:139 from nucleotide 437 to nucleotide 1681, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:139 from nucleotide 437 to nucleotide 1681.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:140;
- (b) fragments of the amino acid sequence of SEQ ID NO:140, each fragment comprising eight consecutive amino acids of SEQ ID NO:140; and
- 15 (c) the amino acid sequence encoded by the cDNA insert of clone pe584_2 deposited with the ATCC under accession number 98636;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:140. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 20 amino acid sequence of SEQ ID NO:140 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:140, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:140 having biological activity, the fragment comprising the amino acid sequence from amino acid 222 to amino acid 231 of SEQ ID NO:140.

25 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:141;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:141 from nucleotide 78 to nucleotide 1502;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:141 from nucleotide 564 to nucleotide 1502;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pj323_2 deposited with the ATCC under accession number 98636;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pj323_2 deposited with the ATCC under accession number 98636;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pj323_2 deposited with the ATCC under accession number 98636;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pj323_2 deposited with the ATCC under accession number 98636;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:142;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:142 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:142;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:141 from nucleotide 78 to nucleotide 1502; the nucleotide sequence of SEQ ID NO:141 from nucleotide 564 to nucleotide 1502; the nucleotide sequence of the full-length protein coding sequence of clone pj323_2 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone pj323_2 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pj323_2 deposited with the ATCC under accession number 98636. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:142 from amino acid 54 to amino acid 145. In further preferred embodiments, the present

invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:142 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:142, or a polynucleotide encoding a protein comprising a 5 fragment of the amino acid sequence of SEQ ID NO:142 having biological activity, the fragment comprising the amino acid sequence from amino acid 232 to amino acid 241 of SEQ ID NO:142.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:141.

10 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 15 consisting of:

(aa) SEQ ID NO:141, but excluding the poly(A) tail at the 3' end of SEQ ID NO:141; and

(ab) the nucleotide sequence of the cDNA insert of clone pj323_2 deposited with the ATCC under accession number 98636;

20 (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

25 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

30 (ba) SEQ ID NO:141, but excluding the poly(A) tail at the 3' end of SEQ ID NO:141; and

(bb) the nucleotide sequence of the cDNA insert of clone pj323_2 deposited with the ATCC under accession number 98636;

- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).
- 5 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:141, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:141 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:141, but excluding the poly(A) tail at the 3' end of SEQ ID NO:141. Also preferably the
- 10 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:141 from nucleotide 78 to nucleotide 1502, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:141 from nucleotide 78 to nucleotide 1502, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:141 from nucleotide
- 15 78 to nucleotide 1502. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:141 from nucleotide 564 to nucleotide 1502, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:141 from nucleotide 564 to nucleotide 1502, to a nucleotide sequence corresponding to the 3' end
- 20 of said sequence of SEQ ID NO:141 from nucleotide 564 to nucleotide 1502.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:142;
- 25 (b) the amino acid sequence of SEQ ID NO:142 from amino acid 54 to amino acid 145;
- (c) fragments of the amino acid sequence of SEQ ID NO:142, each fragment comprising eight consecutive amino acids of SEQ ID NO:142; and
- (d) the amino acid sequence encoded by the cDNA insert of clone
- 30 pj323_2 deposited with the ATCC under accession number 98636;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:142 or the amino acid sequence of SEQ ID NO:142 from amino acid 54 to amino acid 145. In further preferred

embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:142 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:142, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:142 having biological activity, the fragment comprising the amino acid sequence from amino acid 232 to amino acid 241 of SEQ ID NO:142.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:143;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:143 from nucleotide 130 to nucleotide 294;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:143 from nucleotide 241 to nucleotide 294;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb24_1 deposited with the ATCC under accession number 98636;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb24_1 deposited with the ATCC under accession number 98636;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb24_1 deposited with the ATCC under accession number 98636;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb24_1 deposited with the ATCC under accession number 98636;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:144;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:144 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:144;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

(k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

5 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:143 from nucleotide 130 to nucleotide 294; the nucleotide sequence of SEQ ID NO:143 from nucleotide 241 to nucleotide 294; the nucleotide sequence of the full-length protein coding sequence of clone yb24_1 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone yb24_1
10 deposited with the ATCC under accession number 98636. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yb24_1 deposited with the ATCC under accession number 98636. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of
15 SEQ ID NO:144 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:144, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:144 having biological activity, the fragment comprising the amino acid sequence from amino acid 22 to amino acid 31 of SEQ ID NO:144.

20 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:143.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

25 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:143, but excluding the poly(A) tail at the 3' end of SEQ ID NO:143; and

30 (ab) the nucleotide sequence of the cDNA insert of clone yb24_1 deposited with the ATCC under accession number 98636;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:143, but excluding the poly(A) tail at the 3' end of SEQ ID NO:143; and

10 (bb) the nucleotide sequence of the cDNA insert of clone yb24_1 deposited with the ATCC under accession number 98636;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:143, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:143 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:143, but excluding the poly(A) tail at the 3' end of SEQ ID NO:143. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:143 from nucleotide 130 to nucleotide 294, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:143 from nucleotide 130 to nucleotide 294, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:143 from nucleotide 130 to nucleotide 294. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:143 from nucleotide 241 to nucleotide 294, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:143 from nucleotide 241 to nucleotide 294, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:143 from nucleotide 241 to nucleotide 294.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:144;
- 5 (b) fragments of the amino acid sequence of SEQ ID NO:144, each fragment comprising eight consecutive amino acids of SEQ ID NO:144; and
- (c) the amino acid sequence encoded by the cDNA insert of clone yb24_1 deposited with the ATCC under accession number 98636;

the protein being substantially free from other mammalian proteins. Preferably such 10 protein comprises the amino acid sequence of SEQ ID NO:144. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:144 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:144, or a protein comprising a fragment of the amino acid 15 sequence of SEQ ID NO:144 having biological activity, the fragment comprising the amino acid sequence from amino acid 22 to amino acid 31 of SEQ ID NO:144.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 20 NO:145;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:145 from nucleotide 514 to nucleotide 1707;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:145 from nucleotide 580 to nucleotide 1707;
- 25 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone yb44_1 deposited with the ATCC under accession number 98636;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone yb44_1 deposited with the ATCC under accession number 30 98636;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone yb44_1 deposited with the ATCC under accession number 98636;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone yb44_1 deposited with the ATCC under accession number 98636;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:146;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:146 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:146;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
- 15 NO:145 from nucleotide 514 to nucleotide 1707; the nucleotide sequence of SEQ ID NO:145 from nucleotide 580 to nucleotide 1707; the nucleotide sequence of the full-length protein coding sequence of clone yb44_1 deposited with the ATCC under accession number 98636; or the nucleotide sequence of a mature protein coding sequence of clone yb44_1 deposited with the ATCC under accession number 98636. In other preferred
- 20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone yb44_1 deposited with the ATCC under accession number 98636. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:146 having biological activity, the fragment preferably comprising eight
- 25 (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:146, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:146 having biological activity, the fragment comprising the amino acid sequence from amino acid 194 to amino acid 203 of SEQ ID NO:146.
- Other embodiments provide the gene corresponding to the cDNA sequence of
- 30 SEQ ID NO:145.
- Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:
- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:145, but excluding the poly(A) tail at the 3' end of SEQ ID NO:145; and

(ab) the nucleotide sequence of the cDNA insert of clone yb44_1 deposited with the ATCC under accession number 98636;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:145, but excluding the poly(A) tail at the 3' end of SEQ ID NO:145; and

20 (bb) the nucleotide sequence of the cDNA insert of clone yb44_1 deposited with the ATCC under accession number 98636;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:145, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:145 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:145, but excluding the poly(A) tail at the 3' end of SEQ ID NO:145. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:145 from nucleotide 514 to nucleotide 1707, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:145 from nucleotide 514 to nucleotide 1707,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:145 from nucleotide 514 to nucleotide 1707. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:145 from nucleotide 580 to nucleotide 1707, and extending 5 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:145 from nucleotide 580 to nucleotide 1707, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:145 from nucleotide 580 to nucleotide 1707.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:146;
- (b) fragments of the amino acid sequence of SEQ ID NO:146, each fragment comprising eight consecutive amino acids of SEQ ID NO:146; and
- 15 (c) the amino acid sequence encoded by the cDNA insert of clone yb44_1 deposited with the ATCC under accession number 98636;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:146. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 20 amino acid sequence of SEQ ID NO:146 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:146, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:146 having biological activity, the fragment comprising the amino acid sequence from amino acid 194 to amino acid 203 of SEQ ID NO:146.

25 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:147;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:147 from nucleotide 1529 to nucleotide 1726;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:147 from nucleotide 1706 to nucleotide 1726;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone bn69_15 deposited with the ATCC under accession number 98647;
- 5 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone bn69_15 deposited with the ATCC under accession number 98647;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone bn69_15 deposited with the ATCC under accession number 98647;
- 10 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone bn69_15 deposited with the ATCC under accession number 98647;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:148;
- 15 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:148 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:148;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 20 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and.
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:147 from nucleotide 1529 to nucleotide 1726; the nucleotide sequence of SEQ ID NO:147 from nucleotide 1706 to nucleotide 1726; the nucleotide sequence of the full-length protein coding sequence of clone bn69_15 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone bn69_15 deposited with the ATCC under accession number 98647. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone bn69_15 deposited with the ATCC under accession number 98647. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:148 from amino acid 1 to amino acid 53. In further preferred embodiments, the present

invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:148 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:148, or a polynucleotide encoding a protein comprising a 5 fragment of the amino acid sequence of SEQ ID NO:148 having biological activity, the fragment comprising the amino acid sequence from amino acid 28 to amino acid 37 of SEQ ID NO:148.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:147.

10 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 15 consisting of:

(aa) SEQ ID NO:147, but excluding the poly(A) tail at the 3' end of SEQ ID NO:147; and

(ab) the nucleotide sequence of the cDNA insert of clone bn69_15 deposited with the ATCC under accession number 98647;

20 (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

25 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:147, but excluding the poly(A) tail at the 30 3' end of SEQ ID NO:147; and

(bb) the nucleotide sequence of the cDNA insert of clone bn69_15 deposited with the ATCC under accession number 98647;

- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

5 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:147, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:147 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:147, but excluding the poly(A) tail at the 3' end of SEQ ID NO:147. Also preferably the
10 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:147 from nucleotide 1529 to nucleotide 1726, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:147 from nucleotide 1529 to nucleotide 1726, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:147
15 from nucleotide 1529 to nucleotide 1726. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:147 from nucleotide 1706 to nucleotide 1726, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:147 from nucleotide 1706 to nucleotide 1726, to a nucleotide
20 sequence corresponding to the 3' end of said sequence of SEQ ID NO:147 from nucleotide 1706 to nucleotide 1726.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 25 (a) the amino acid sequence of SEQ ID NO:148;
(b) the amino acid sequence of SEQ ID NO:148 from amino acid 1 to amino acid 53;
(c) fragments of the amino acid sequence of SEQ ID NO:148, each fragment comprising eight consecutive amino acids of SEQ ID NO:148; and
30 (d) the amino acid sequence encoded by the cDNA insert of clone bn69_15 deposited with the ATCC under accession number 98647;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:148 or the amino acid sequence

of SEQ ID NO:148 from amino acid 1 to amino acid 53. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:148 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:148, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:148 having biological activity, the fragment comprising the amino acid sequence from amino acid 28 to amino acid 37 of SEQ ID NO:148.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 10 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:149;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:149 from nucleotide 334 to nucleotide 597;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:149 from nucleotide 478 to nucleotide 597;
- 15 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone cb110_1 deposited with the ATCC under accession number 98647;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone cb110_1 deposited with the ATCC under accession number 98647;
- 20 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone cb110_1 deposited with the ATCC under accession number 98647;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone cb110_1 deposited with the ATCC under accession number 98647;
- 25 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:150;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:150 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:150;
- 30 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

5 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:149 from nucleotide 334 to nucleotide 597; the nucleotide sequence of SEQ ID NO:149 from nucleotide 478 to nucleotide 597; the nucleotide sequence of the full-length protein coding sequence of clone cb110_1 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone cb110_1
10 deposited with the ATCC under accession number 98647. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone cb110_1 deposited with the ATCC under accession number 98647. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of
15 SEQ ID NO:150 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:150, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:150 having biological activity, the fragment comprising the amino acid sequence from amino acid 39 to amino acid 48 of SEQ ID NO:150.

20 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:149.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

25 (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
30 (aa) SEQ ID NO:149, but excluding the poly(A) tail at the 3' end of SEQ ID NO:149; and
(ab) the nucleotide sequence of the cDNA insert of clone cb110_1 deposited with the ATCC under accession number 98647;
(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:149, but excluding the poly(A) tail at the 3' end of SEQ ID NO:149; and

10 (bb) the nucleotide sequence of the cDNA insert of clone cb110_1 deposited with the ATCC under accession number 98647;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:149, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:149 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:149, but

20 excluding the poly(A) tail at the 3' end of SEQ ID NO:149. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:149 from nucleotide 334 to nucleotide 597, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:149 from nucleotide 334 to nucleotide 597,

25 to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:149 from nucleotide 334 to nucleotide 597. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:149 from nucleotide 478 to nucleotide 597, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of

30 SEQ ID NO:149 from nucleotide 478 to nucleotide 597, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:149 from nucleotide 478 to nucleotide 597.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:150;
 - 5 (b) fragments of the amino acid sequence of SEQ ID NO:150, each fragment comprising eight consecutive amino acids of SEQ ID NO:150; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone cb110_1 deposited with the ATCC under accession number 98647;
- the protein being substantially free from other mammalian proteins. Preferably such 10 protein comprises the amino acid sequence of SEQ ID NO:150. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:150 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:150, or a protein comprising a fragment of the amino acid 15 sequence of SEQ ID NO:150 having biological activity, the fragment comprising the amino acid sequence from amino acid 39 to amino acid 48 of SEQ ID NO:150.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 20 NO:151;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:151 from nucleotide 191 to nucleotide 1132;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:151 from nucleotide 290 to nucleotide 1132;
- 25 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone ch4_11 deposited with the ATCC under accession number 98647;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone ch4_11 deposited with the ATCC under accession number 30 98647;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone ch4_11 deposited with the ATCC under accession number 98647;

(g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone ch4_11 deposited with the ATCC under accession number 98647;

(h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:152;

5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:152 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:152;

(j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID
15 NO:151 from nucleotide 191 to nucleotide 1132; the nucleotide sequence of SEQ ID NO:151 from nucleotide 290 to nucleotide 1132; the nucleotide sequence of the full-length protein coding sequence of clone ch4_11 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone ch4_11 deposited with the ATCC under accession number 98647. In other preferred
20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone ch4_11 deposited with the ATCC under accession number 98647.

In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:152 having biological activity, the fragment preferably comprising eight (more preferably
25 twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:152, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:152 having biological activity, the fragment comprising the amino acid sequence from amino acid 152 to amino acid 161 of SEQ ID NO:152.

Other embodiments provide the gene corresponding to the cDNA sequence of
30 SEQ ID NO:151.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:151, but excluding the poly(A) tail at the 3' end of SEQ ID NO:151; and

(ab) the nucleotide sequence of the cDNA insert of clone ch4_11 deposited with the ATCC under accession number 98647;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:151, but excluding the poly(A) tail at the 3' end of SEQ ID NO:151; and

(bb) the nucleotide sequence of the cDNA insert of clone ch4_11 deposited with the ATCC under accession number 98647;

20 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:151, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:151 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:151, but excluding the poly(A) tail at the 3' end of SEQ ID NO:151. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:151 from nucleotide 191 to nucleotide 1132, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:151 from nucleotide 191 to nucleotide 1132,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:151 from nucleotide 191 to nucleotide 1132. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:151 from nucleotide 290 to nucleotide 1132, and extending 5 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:151 from nucleotide 290 to nucleotide 1132, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:151 from nucleotide 290 to nucleotide 1132.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:152;
- (b) fragments of the amino acid sequence of SEQ ID NO:152, each fragment comprising eight consecutive amino acids of SEQ ID NO:152; and
- 15 (c) the amino acid sequence encoded by the cDNA insert of clone ch4_11 deposited with the ATCC under accession number 98647;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:152. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 20 amino acid sequence of SEQ ID NO:152 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:152, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:152 having biological activity, the fragment comprising the amino acid sequence from amino acid 152 to amino acid 161 of SEQ ID NO:152.

25 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:153;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:153 from nucleotide 732 to nucleotide 1898;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone cn621_8 deposited with the ATCC under accession number 98647;

(d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone cn621_8 deposited with the ATCC under accession number 98647;

5 (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone cn621_8 deposited with the ATCC under accession number 98647;

(f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone cn621_8 deposited with the ATCC under accession number 98647;

10 (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:154;

(h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:154 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:154;

15 (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;

(j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and

(k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:153 from nucleotide 732 to nucleotide 1898; the nucleotide sequence of the full-length protein coding sequence of clone cn621_8 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone cn621_8 deposited with the ATCC under accession number 98647. In other preferred 25 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone cn621_8 deposited with the ATCC under accession number 98647. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:154 having biological activity, the fragment preferably comprising eight 30 (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:154, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:154 having biological activity, the fragment comprising the amino acid sequence from amino acid 189 to amino acid 198 of SEQ ID NO:154.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:153.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 5 (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10 (aa) SEQ ID NO:153, but excluding the poly(A) tail at the 3' end of SEQ ID NO:153; and

(ab) the nucleotide sequence of the cDNA insert of clone cn621_8 deposited with the ATCC under accession number 98647;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

15 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

- (b) a process comprising the steps of:

20 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:153, but excluding the poly(A) tail at the 3' end of SEQ ID NO:153; and

(bb) the nucleotide sequence of the cDNA insert of clone cn621_8 deposited with the ATCC under accession number 98647;

25 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

30 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:153, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:153 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:153, but

excluding the poly(A) tail at the 3' end of SEQ ID NO:153. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:153 from nucleotide 732 to nucleotide 1898, and extending contiguously from a nucleotide sequence corresponding 5 to the 5' end of said sequence of SEQ ID NO:153 from nucleotide 732 to nucleotide 1898, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:153 from nucleotide 732 to nucleotide 1898.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:154;
- (b) fragments of the amino acid sequence of SEQ ID NO:154, each fragment comprising eight consecutive amino acids of SEQ ID NO:154; and
- (c) the amino acid sequence encoded by the cDNA insert of clone 15 cn621_8 deposited with the ATCC under accession number 98647; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:154. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:154 having biological activity, the fragment 20 preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:154, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:154 having biological activity, the fragment comprising the amino acid sequence from amino acid 189 to amino acid 198 of SEQ ID NO:154.

In one embodiment, the present invention provides a composition comprising 25 an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:155;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:155 from nucleotide 308 to nucleotide 592;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID 30 NO:155 from nucleotide 377 to nucleotide 592;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone gy621_1 deposited with the ATCC under accession number 98647;
- 5 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone gy621_1 deposited with the ATCC under accession number 98647;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone gy621_1 deposited with the ATCC under accession number 98647;
- 10 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone gy621_1 deposited with the ATCC under accession number 98647;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:156;
- 15 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:156 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:156;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 20 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:155 from nucleotide 308 to nucleotide 592; the nucleotide sequence of SEQ ID NO:155 from nucleotide 377 to nucleotide 592; the nucleotide sequence of the full-length protein coding sequence of clone gy621_1 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone gy621_1 deposited with the ATCC under accession number 98647. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone gy621_1 deposited with the ATCC under accession number 98647. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:156 having biological activity, the fragment preferably comprising eight

(more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:156, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:156 having biological activity, the fragment comprising the amino acid sequence from amino acid 42 to amino acid 51 of SEQ ID NO:156.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:155.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
- 10 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- (aa) SEQ ID NO:155, but excluding the poly(A) tail at the 3' end of SEQ ID NO:155; and
- 15 (ab) the nucleotide sequence of the cDNA insert of clone gy621_1 deposited with the ATCC under accession number 98647;
- (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
- 20 (iii) isolating the DNA polynucleotides detected with the probe(s);
- and
- (b) a process comprising the steps of:
- 25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
- (ba) SEQ ID NO:155, but excluding the poly(A) tail at the 3' end of SEQ ID NO:155; and
- (bb) the nucleotide sequence of the cDNA insert of clone gy621_1 deposited with the ATCC under accession number 98647;
- 30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:155, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:155 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:155, but

5 excluding the poly(A) tail at the 3' end of SEQ ID NO:155. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:155 from nucleotide 308 to nucleotide 592, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:155 from nucleotide 308 to nucleotide 592,

10 to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:155 from nucleotide 308 to nucleotide 592. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:155 from nucleotide 377 to nucleotide 592, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of

15 SEQ ID NO:155 from nucleotide 377 to nucleotide 592, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:155 from nucleotide 377 to nucleotide 592.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the

20 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:156;
- (b) fragments of the amino acid sequence of SEQ ID NO:156, each fragment comprising eight consecutive amino acids of SEQ ID NO:156; and
- (c) the amino acid sequence encoded by the cDNA insert of clone

25 gy621_1 deposited with the ATCC under accession number 98647;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:156. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:156 having biological activity, the fragment

30 preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:156, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:156 having biological activity, the fragment comprising the amino acid sequence from amino acid 42 to amino acid 51 of SEQ ID NO:156.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:157;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:157 from nucleotide 124 to nucleotide 1881;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:157 from nucleotide 325 to nucleotide 1881;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone hb1041_2 deposited with the ATCC under accession number 98647;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone hb1041_2 deposited with the ATCC under accession number 98647;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone hb1041_2 deposited with the ATCC under accession number 98647;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone hb1041_2 deposited with the ATCC under accession number 98647;
- 20 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:158;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:158 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:158;
- 25 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above; and
- (l) a polynucleotide that hybridizes under stringent conditions to any 30 one of the polynucleotides specified in (a)-(i).

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:157 from nucleotide 124 to nucleotide 1881; the nucleotide sequence of SEQ ID NO:157 from nucleotide 325 to nucleotide 1881; the nucleotide sequence of the full-length

protein coding sequence of clone hb1041_2 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone hb1041_2 deposited with the ATCC under accession number 98647. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by

- 5 the cDNA insert of clone hb1041_2 deposited with the ATCC under accession number 98647. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:158 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID 10 NO:158, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:158 having biological activity, the fragment comprising the amino acid sequence from amino acid 288 to amino acid 297 of SEQ ID NO:158.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:157.

- 15 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 20 consisting of:

(aa) SEQ ID NO:157, but excluding the poly(A) tail at the 3' end of SEQ ID NO:157; and

(ab) the nucleotide sequence of the cDNA insert of clone hb1041_2 deposited with the ATCC under accession number 98647;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

25 and

- 30 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:157, but excluding the poly(A) tail at the 3' end of SEQ ID NO:157; and

(bb) the nucleotide sequence of the cDNA insert of clone hb1041_2 deposited with the ATCC under accession number 98647;

10 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:157, and
15 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:157 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:157, but excluding the poly(A) tail at the 3' end of SEQ ID NO:157. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:157 from nucleotide 124 to
20 nucleotide 1881, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:157 from nucleotide 124 to nucleotide 1881, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:157 from nucleotide 124 to nucleotide 1881. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the
25 cDNA sequence of SEQ ID NO:157 from nucleotide 325 to nucleotide 1881, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:157 from nucleotide 325 to nucleotide 1881, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:157 from nucleotide 325 to nucleotide 1881.

30 In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:158;

- (b) fragments of the amino acid sequence of SEQ ID NO:158, each fragment comprising eight consecutive amino acids of SEQ ID NO:158; and
- (c) the amino acid sequence encoded by the cDNA insert of clone hb1041_2 deposited with the ATCC under accession number 98647;
- 5 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:158. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:158 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive
- 10 amino acids of SEQ ID NO:158, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:158 having biological activity, the fragment comprising the amino acid sequence from amino acid 288 to amino acid 297 of SEQ ID NO:158.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 15 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:159;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:159 from nucleotide 163 to nucleotide 1431;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone mh703_1 deposited with the ATCC under accession number 98647;
- 20 (d) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone mh703_1 deposited with the ATCC under accession number 98647;
- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone mh703_1 deposited with the ATCC under accession number 98647;
- 25 (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone mh703_1 deposited with the ATCC under accession number 98647;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:160;

- (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:160 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:160;
- 5 (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ; and
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h).

10 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:159 from nucleotide 163 to nucleotide 1431; the nucleotide sequence of the full-length protein coding sequence of clone mh703_1 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone mh703_1 deposited with the ATCC under accession number 98647. In other preferred 15 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone mh703_1 deposited with the ATCC under accession number 98647. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:160 having biological activity, the fragment preferably comprising eight 20 (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:160, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:160 having biological activity, the fragment comprising the amino acid sequence from amino acid 206 to amino acid 215 of SEQ ID NO:160.

Other embodiments provide the gene corresponding to the cDNA sequence of 25 SEQ ID NO:159.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 30 consisting of:
 - (aa) SEQ ID NO:159, but excluding the poly(A) tail at the 3' end of SEQ ID NO:159; and

(ab) the nucleotide sequence of the cDNA insert of clone mh703_1 deposited with the ATCC under accession number 98647;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

5 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

10 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:159, but excluding the poly(A) tail at the 3' end of SEQ ID NO:159; and

15 (bb) the nucleotide sequence of the cDNA insert of clone mh703_1 deposited with the ATCC under accession number 98647;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

- 20 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:159, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:159 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:159, but excluding the poly(A) tail at the 3' end of SEQ ID NO:159. Also preferably the
25 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:159 from nucleotide 163 to nucleotide 1431, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:159 from nucleotide 163 to nucleotide 1431, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:159
30 from nucleotide 163 to nucleotide 1431.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:160;
- (b) fragments of the amino acid sequence of SEQ ID NO:160, each fragment comprising eight consecutive amino acids of SEQ ID NO:160; and
- (c) the amino acid sequence encoded by the cDNA insert of clone mh703_1 deposited with the ATCC under accession number 98647; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:160. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:160 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:160, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:160 having biological activity, the fragment comprising the amino acid sequence from amino acid 206 to amino acid 215 of SEQ ID NO:160.
- In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:
- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:161;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:161 from nucleotide 653 to nucleotide 934;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:161 from nucleotide 878 to nucleotide 934;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone na461_19 deposited with the ATCC under accession number 98647;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone na461_19 deposited with the ATCC under accession number 98647;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone na461_19 deposited with the ATCC under accession number 98647;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone na461_19 deposited with the ATCC under accession number 98647;

- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:162;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:162 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:162;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- 10 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:161 from nucleotide 653 to nucleotide 934; the nucleotide sequence of SEQ ID NO:161 from nucleotide 878 to nucleotide 934; the nucleotide sequence of the full-length protein coding sequence of clone na461_19 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone na461_19 deposited with the ATCC under accession number 98647. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone na461_19 deposited with the ATCC under accession number 98647.
- 15 In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:162 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:162, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:162 having biological activity, the fragment comprising the amino acid sequence from amino acid 42 to amino acid 51 of SEQ ID NO:162.
- 20 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:161.
- 25 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (aa) SEQ ID NO:161, but excluding the poly(A) tail at the 3' end of SEQ ID NO:161; and

(ab) the nucleotide sequence of the cDNA insert of clone na461_19 deposited with the ATCC under accession number 98647;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

10 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

15 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:161, but excluding the poly(A) tail at the 3' end of SEQ ID NO:161; and

20 (bb) the nucleotide sequence of the cDNA insert of clone na461_19 deposited with the ATCC under accession number 98647;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

25 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:161, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:161 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:161, but excluding the poly(A) tail at the 3' end of SEQ ID NO:161. Also preferably the

30 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:161 from nucleotide 653 to nucleotide 934, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:161 from nucleotide 653 to nucleotide 934,

to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:161 from nucleotide 653 to nucleotide 934. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:161 from nucleotide 878 to nucleotide 934, and extending 5 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:161 from nucleotide 878 to nucleotide 934, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:161 from nucleotide 878 to nucleotide 934.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:162;
- (b) fragments of the amino acid sequence of SEQ ID NO:162, each fragment comprising eight consecutive amino acids of SEQ ID NO:162; and
- 15 (c) the amino acid sequence encoded by the cDNA insert of clone na461_19 deposited with the ATCC under accession number 98647;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:162. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 20 amino acid sequence of SEQ ID NO:162 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:162, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:162 having biological activity, the fragment comprising the amino acid sequence from amino acid 42 to amino acid 51 of SEQ ID NO:162.

25 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:163;
- (b) 30 a polynucleotide comprising the nucleotide sequence of SEQ ID NO:163 from nucleotide 72 to nucleotide 1319;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:163 from nucleotide 1071 to nucleotide 1319;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone na492_2 deposited with the ATCC under accession number 98647;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone na492_2 deposited with the ATCC under accession number 98647;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone na492_2 deposited with the ATCC under accession number 98647;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone na492_2 deposited with the ATCC under accession number 98647;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:164;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:164 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:164;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:163 from nucleotide 72 to nucleotide 1319; the nucleotide sequence of SEQ ID NO:163 from nucleotide 1071 to nucleotide 1319; the nucleotide sequence of the full-length protein coding sequence of clone na492_2 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone na492_2 deposited with the ATCC under accession number 98647. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone na492_2 deposited with the ATCC under accession number 98647. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:164 having biological activity, the fragment preferably comprising eight

(more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:164, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:164 having biological activity, the fragment comprising the amino acid sequence from amino acid 202 to amino acid 211 of SEQ ID NO:164.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:163.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

10 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:163, but excluding the poly(A) tail at the 3' end of SEQ ID NO:163; and

15 (ab) the nucleotide sequence of the cDNA insert of clone na492_2 deposited with the ATCC under accession number 98647;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and

20 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:163, but excluding the poly(A) tail at the 3' end of SEQ ID NO:163; and

(bb) the nucleotide sequence of the cDNA insert of clone na492_2 deposited with the ATCC under accession number 98647;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:163, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:163 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:163, but

5 excluding the poly(A) tail at the 3' end of SEQ ID NO:163. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:163 from nucleotide 72 to nucleotide 1319, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:163 from nucleotide 72 to nucleotide 1319, to a nucleotide

10 sequence corresponding to the 3' end of said sequence of SEQ ID NO:163 from nucleotide 72 to nucleotide 1319. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:163 from nucleotide 1071 to nucleotide 1319, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:163 from

15 nucleotide 1071 to nucleotide 1319, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:163 from nucleotide 1071 to nucleotide 1319.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 20 (a) the amino acid sequence of SEQ ID NO:164;
- (b) fragments of the amino acid sequence of SEQ ID NO:164, each fragment comprising eight consecutive amino acids of SEQ ID NO:164; and
- (c) the amino acid sequence encoded by the cDNA insert of clone na492_2 deposited with the ATCC under accession number 98647;
- 25 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:164. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:164 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive
- 30 amino acids of SEQ ID NO:164, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:164 having biological activity, the fragment comprising the amino acid sequence from amino acid 202 to amino acid 211 of SEQ ID NO:164.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:165;
- 5 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:165 from nucleotide 2848 to nucleotide 3048;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:165 from nucleotide 3004 to nucleotide 3048;
- 10 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone na669_10 deposited with the ATCC under accession number 98647;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone na669_10 deposited with the ATCC under accession number 98647;
- 15 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone na669_10 deposited with the ATCC under accession number 98647;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone na669_10 deposited with the ATCC under accession number 98647;
- 20 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:166;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:166 having biological activity, the fragment comprising eight consecutive amino acids of SEQ ID NO:166;
- 25 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ; and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i).

30 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:165 from nucleotide 2848 to nucleotide 3048; the nucleotide sequence of SEQ ID NO:165 from nucleotide 3004 to nucleotide 3048; the nucleotide sequence of the full-

length protein coding sequence of clone na669_10 deposited with the ATCC under accession number 98647; or the nucleotide sequence of a mature protein coding sequence of clone na669_10 deposited with the ATCC under accession number 98647. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein
5 encoded by the cDNA insert of clone na669_10 deposited with the ATCC under accession number 98647. In yet other preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:166 from amino acid 5 to amino acid 62. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the
10 amino acid sequence of SEQ ID NO:166 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:166, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:166 having biological activity, the fragment comprising the amino acid sequence from amino acid 28 to amino acid 37 of
15 SEQ ID NO:166.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:165.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- 20 (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
(aa) SEQ ID NO:165, but excluding the poly(A) tail at the
25 3' end of SEQ ID NO:165; and
(ab) the nucleotide sequence of the cDNA insert of clone na669_10 deposited with the ATCC under accession number 98647;
(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C; and
30 (iii) isolating the DNA polynucleotides detected with the probe(s);
and

- (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

5 (ba) SEQ ID NO:165, but excluding the poly(A) tail at the 3' end of SEQ ID NO:165; and

(bb) the nucleotide sequence of the cDNA insert of clone na669_10 deposited with the ATCC under accession number 98647;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 65 degrees C;

10 (iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:165, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ

15 ID NO:165 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:165, but excluding the poly(A) tail at the 3' end of SEQ ID NO:165. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:165 from nucleotide 2848 to nucleotide 3048, and extending contiguously from a nucleotide sequence corresponding

20 to the 5' end of said sequence of SEQ ID NO:165 from nucleotide 2848 to nucleotide 3048, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:165 from nucleotide 2848 to nucleotide 3048. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:165 from nucleotide 3004 to nucleotide 3048, and

25 extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:165 from nucleotide 3004 to nucleotide 3048, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:165 from nucleotide 3004 to nucleotide 3048.

In other embodiments, the present invention provides a composition comprising 30 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:166;

- (b) the amino acid sequence of SEQ ID NO:166 from amino acid 5 to amino acid 62;
- (c) fragments of the amino acid sequence of SEQ ID NO:166, each fragment comprising eight consecutive amino acids of SEQ ID NO:166; and
- 5 (d) the amino acid sequence encoded by the cDNA insert of clone na669_10 deposited with the ATCC under accession number 98647; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:166 or the amino acid sequence of SEQ ID NO:166 from amino acid 5 to amino acid 62. In further preferred embodiments,
- 10 the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:166 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) consecutive amino acids of SEQ ID NO:166, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:166 having biological activity, the fragment comprising the amino acid sequence from amino acid 28 to amino acid 37 of SEQ ID NO:166.
- 15

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:167;
- 20 (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:167 from nucleotide 185 to nucleotide 1678;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:167 from nucleotide 482 to nucleotide 1678;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone co821_31 deposited with the ATCC under accession number 98663;
- 25 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone co821_31 deposited with the ATCC under accession number 98663;
- 30 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone co821_31 deposited with the ATCC under accession number 98663;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone co821_31 deposited with the ATCC under accession number 98663;

(h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:168;

5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:168 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:168;

(j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above;

(l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and

15 (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:167.

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:167 from nucleotide 185 to nucleotide 1678; the nucleotide sequence of SEQ ID NO:167 from nucleotide 482 to nucleotide 1678; the nucleotide sequence of the full-length protein coding sequence of clone co821_31 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone co821_31 deposited with the ATCC under accession number 98663. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone co821_31 deposited with the ATCC under accession number 98663.

20 In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:168 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:168, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:168 having biological activity, the fragment comprising the amino acid sequence from amino acid 244 to amino acid 253 of SEQ ID NO:168.

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Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:167.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

5 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:167, but excluding the poly(A) tail at the 3' end of SEQ ID NO:167; and

10 (ab) the nucleotide sequence of the cDNA insert of clone co821_31 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

15 and

(b) a process comprising the steps of:

20 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:167, but excluding the poly(A) tail at the 3' end of SEQ ID NO:167; and

(bb) the nucleotide sequence of the cDNA insert of clone co821_31 deposited with the ATCC under accession number 98663;

25 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:167, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:167 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:167, but excluding the poly(A) tail at the 3' end of SEQ ID NO:167. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence

corresponding to the cDNA sequence of SEQ ID NO:167 from nucleotide 185 to nucleotide 1678, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:167 from nucleotide 185 to nucleotide 1678, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:167
5 from nucleotide 185 to nucleotide 1678. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:167 from nucleotide 482 to nucleotide 1678, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:167 from nucleotide 482 to nucleotide 1678, to a nucleotide sequence
10 corresponding to the 3' end of said sequence of SEQ ID NO:167 from nucleotide 482 to nucleotide 1678.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 15 (a) the amino acid sequence of SEQ ID NO:168;
(b) a fragment of the amino acid sequence of SEQ ID NO:168, the fragment comprising eight contiguous amino acids of SEQ ID NO:168; and
(c) the amino acid sequence encoded by the cDNA insert of clone co821_31 deposited with the ATCC under accession number 98663;
20 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:168. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:168 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous
25 amino acids of SEQ ID NO:168, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:168 having biological activity, the fragment comprising the amino acid sequence from amino acid 244 to amino acid 253 of SEQ ID NO:168.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 30 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:169;
(b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:169 from nucleotide 176 to nucleotide 754;

- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:169 from nucleotide 425 to nucleotide 754;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone dk329_1 deposited with the ATCC under accession number 98663;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone dk329_1 deposited with the ATCC under accession number 98663;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone dk329_1 deposited with the ATCC under accession number 98663;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone dk329_1 deposited with the ATCC under accession number 98663;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:170;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:170 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:170;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ;
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and
- (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:169.
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:169 from nucleotide 176 to nucleotide 754; the nucleotide sequence of SEQ ID NO:169 from nucleotide 425 to nucleotide 754; the nucleotide sequence of the full-length protein coding sequence of clone dk329_1 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone dk329_1 deposited with the ATCC under accession number 98663. In other preferred

embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone dk329_1 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:170 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:170, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:170 having biological activity, the fragment comprising the amino acid sequence from amino acid 91 to amino acid 100 of SEQ ID NO:170.

10 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:169.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

15 (a) a process comprising the steps of:
(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:169, but excluding the poly(A) tail at the 3' end of SEQ ID NO:169; and

20 (ab) the nucleotide sequence of the cDNA insert of clone dk329_1 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

25 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

30 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:169, but excluding the poly(A) tail at the 3' end of SEQ ID NO:169; and

- (bb) the nucleotide sequence of the cDNA insert of clone dk329_1 deposited with the ATCC under accession number 98663;
- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;
- 5 (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:169, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ 10 ID NO:169 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:169, but excluding the poly(A) tail at the 3' end of SEQ ID NO:169. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:169 from nucleotide 176 to nucleotide 754, and extending contiguously from a nucleotide sequence corresponding 15 to the 5' end of said sequence of SEQ ID NO:169 from nucleotide 176 to nucleotide 754, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:169 from nucleotide 176 to nucleotide 754. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:169 from nucleotide 425 to nucleotide 754, and extending 20 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:169 from nucleotide 425 to nucleotide 754, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:169 from nucleotide 425 to nucleotide 754.

In other embodiments, the present invention provides a composition comprising 25 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:170;
- (b) a fragment of the amino acid sequence of SEQ ID NO:170, the fragment comprising eight contiguous amino acids of SEQ ID NO:170; and
- 30 (c) the amino acid sequence encoded by the cDNA insert of clone dk329_1 deposited with the ATCC under accession number 98663;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:170. In further preferred

embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:170 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:170, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:170 having biological activity, the fragment comprising the amino acid sequence from amino acid 91 to amino acid 100 of SEQ ID NO:170.

5 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:171;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:171 from nucleotide 190 to nucleotide 1449;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:171 from nucleotide 913 to nucleotide 1449;
- 15 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone fx317_11 deposited with the ATCC under accession number 98663;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone fx317_11 deposited with the ATCC under accession number 98663;
- 20 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone fx317_11 deposited with the ATCC under accession number 98663;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone fx317_11 deposited with the ATCC under accession number 98663;
- 25 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:172;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:172 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:172;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above;
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and
- 5 (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:171.

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:171 from nucleotide 190 to nucleotide 1449; the nucleotide sequence of SEQ ID NO:171 from nucleotide 913 to nucleotide 1449; the nucleotide sequence of the full-length protein coding sequence of clone fx317_11 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone fx317_11 deposited with the ATCC under accession number 98663. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone fx317_11 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:172 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:172, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:172 having biological activity, the fragment comprising the amino acid sequence from amino acid 205 to amino acid 214 of SEQ ID NO:172.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:171.

25 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:171, but excluding the poly(A) tail at the 3' end of SEQ ID NO:171; and

(ab) the nucleotide sequence of the cDNA insert of clone fx317_11 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

5 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

10 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:171, but excluding the poly(A) tail at the 3' end of SEQ ID NO:171; and

15 (bb) the nucleotide sequence of the cDNA insert of clone fx317_11 deposited with the ATCC under accession number 98663;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

20 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:171, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:171 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:171, but excluding the poly(A) tail at the 3' end of SEQ ID NO:171. Also preferably the

25 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:171 from nucleotide 190 to nucleotide 1449, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:171 from nucleotide 190 to nucleotide 1449, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:171

30 from nucleotide 190 to nucleotide 1449. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:171 from nucleotide 913 to nucleotide 1449, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of

SEQ ID NO:171 from nucleotide 913 to nucleotide 1449, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:171 from nucleotide 913 to nucleotide 1449.

In other embodiments, the present invention provides a composition comprising
5 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:172;
- (b) a fragment of the amino acid sequence of SEQ ID NO:172, the fragment comprising eight contiguous amino acids of SEQ ID NO:172; and
10 (c) the amino acid sequence encoded by the cDNA insert of clone fx317_11 deposited with the ATCC under accession number 98663; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:172. In further preferred embodiments, the present invention provides a protein comprising a fragment of the
15 amino acid sequence of SEQ ID NO:172 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:172, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:172 having biological activity, the fragment comprising the amino acid sequence from amino acid 205 to amino acid 214 of SEQ ID NO:172.

20 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:173;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID
25 NO:173 from nucleotide 51 to nucleotide 1202;
- (c) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone lp547_4 deposited with the ATCC under accession number 98663;
- (d) a polynucleotide encoding the full-length protein encoded by the
30 cDNA insert of clone lp547_4 deposited with the ATCC under accession number 98663;

- (e) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone lp547_4 deposited with the ATCC under accession number 98663;
- (f) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone lp547_4 deposited with the ATCC under accession number 98663;
- (g) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:174;
- (h) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:174 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:174;
- (i) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(f) above;
- (j) a polynucleotide which encodes a species homologue of the protein of (g) or (h) above ;
- (k) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h); and
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(h) and that has a length that is at least 25% of the length of SEQ ID NO:173.
- 15 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:173 from nucleotide 51 to nucleotide 1202; the nucleotide sequence of the full-length protein coding sequence of clone lp547_4 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone lp547_4 deposited with the ATCC under accession number 98663. In other preferred 20 embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone lp547_4 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:174 having biological activity, the fragment preferably comprising eight 25 (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:174, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:174 having biological activity, the fragment comprising the amino acid sequence from amino acid 187 to amino acid 196 of SEQ ID NO:174.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:173.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

5

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10

(aa) SEQ ID NO:173, but excluding the poly(A) tail at the 3' end of SEQ ID NO:173; and

(ab) the nucleotide sequence of the cDNA insert of clone lp547_4 deposited with the ATCC under accession number 98663;

15

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

20

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:173, but excluding the poly(A) tail at the 3' end of SEQ ID NO:173; and

25

(bb) the nucleotide sequence of the cDNA insert of clone lp547_4 deposited with the ATCC under accession number 98663;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

30 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:173, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:173 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:173, but

excluding the poly(A) tail at the 3' end of SEQ ID NO:173. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:173 from nucleotide 51 to nucleotide 1202, and extending contiguously from a nucleotide sequence corresponding to the 5' end 5 of said sequence of SEQ ID NO:173 from nucleotide 51 to nucleotide 1202, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:173 from nucleotide 51 to nucleotide 1202.

In other embodiments, the present invention provides a composition comprising 10 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:174;
- (b) a fragment of the amino acid sequence of SEQ ID NO:174, the fragment comprising eight contiguous amino acids of SEQ ID NO:174; and
- (c) the amino acid sequence encoded by the cDNA insert of clone

15 1p547_4 deposited with the ATCC under accession number 98663;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:174. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:174 having biological activity, the fragment 20 preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:174, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:174 having biological activity, the fragment comprising the amino acid sequence from amino acid 187 to amino acid 196 of SEQ ID NO:174.

In one embodiment, the present invention provides a composition comprising an 25 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:175;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:175 from nucleotide 61 to nucleotide 2559;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:175 from nucleotide 904 to nucleotide 2559;

- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone lv310_7 deposited with the ATCC under accession number 98663;
- 5 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone lv310_7 deposited with the ATCC under accession number 98663;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone lv310_7 deposited with the ATCC under accession number 98663;
- 10 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone lv310_7 deposited with the ATCC under accession number 98663;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:176;
- 15 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:176 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:176;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 20 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ;
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and
- 25 (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:175.
- Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:175 from nucleotide 61 to nucleotide 2559; the nucleotide sequence of SEQ ID NO:175 from nucleotide 904 to nucleotide 2559; the nucleotide sequence of the full-length protein coding sequence of clone lv310_7 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone lv310_7 deposited with the ATCC under accession number 98663. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone lv310_7 deposited with the ATCC under accession number

98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:176 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:176, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:176 having biological activity, the fragment comprising the amino acid sequence from amino acid 411 to amino acid 420 of SEQ ID NO:176.

5 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:175.

10 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

15 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:175, but excluding the poly(A) tail at the 3' end of SEQ ID NO:175; and

20 (ab) the nucleotide sequence of the cDNA insert of clone lv310_7 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

25 (b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

30 (ba) SEQ ID NO:175, but excluding the poly(A) tail at the 3' end of SEQ ID NO:175; and

(bb) the nucleotide sequence of the cDNA insert of clone lv310_7 deposited with the ATCC under accession number 98663;

- (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;
- (iii) amplifying human DNA sequences; and
- (iv) isolating the polynucleotide products of step (b)(iii).

- 5 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:175, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:175 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:175, but excluding the poly(A) tail at the 3' end of SEQ ID NO:175. Also preferably the
- 10 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:175 from nucleotide 61 to nucleotide 2559, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:175 from nucleotide 61 to nucleotide 2559, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:175 from nucleotide
- 15 61 to nucleotide 2559. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:175 from nucleotide 904 to nucleotide 2559, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:175 from nucleotide 904 to nucleotide 2559, to a nucleotide sequence corresponding to the 3' end
- 20 of said sequence of SEQ ID NO:175 from nucleotide 904 to nucleotide 2559.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 25 (a) the amino acid sequence of SEQ ID NO:176;
- (b) a fragment of the amino acid sequence of SEQ ID NO:176, the fragment comprising eight contiguous amino acids of SEQ ID NO:176; and
- (c) the amino acid sequence encoded by the cDNA insert of clone lv310_7 deposited with the ATCC under accession number 98663;

- the protein being substantially free from other mammalian proteins. Preferably such
- 30 protein comprises the amino acid sequence of SEQ ID NO:176. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:176 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous

amino acids of SEQ ID NO:176, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:176 having biological activity, the fragment comprising the amino acid sequence from amino acid 411 to amino acid 420 of SEQ ID NO:176.

In one embodiment, the present invention provides a composition comprising an 5 isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:177;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:177 from nucleotide 389 to nucleotide 1330;
- 10 (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:177 from nucleotide 1286 to nucleotide 1330;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone nq34_12 deposited with the ATCC under accession number 98663;
- 15 (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone nq34_12 deposited with the ATCC under accession number 98663;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone nq34_12 deposited with the ATCC under accession number 98663;
- 20 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone nq34_12 deposited with the ATCC under accession number 98663;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:178;
- 25 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:178 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:178;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 30 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ;
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and

(m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:177.

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:177 from nucleotide 389 to nucleotide 1330; the nucleotide sequence of SEQ ID NO:177 from nucleotide 1286 to nucleotide 1330; the nucleotide sequence of the full-length protein coding sequence of clone nq34_12 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone nq34_12 deposited with the ATCC under accession number 98663. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone nq34_12 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:178 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:178, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:178 having biological activity, the fragment comprising the amino acid sequence from amino acid 152 to amino acid 161 of SEQ ID NO:178.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:177.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

25 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:177, but excluding the poly(A) tail at the 3' end of SEQ ID NO:177; and

30 (ab) the nucleotide sequence of the cDNA insert of clone nq34_12 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

5 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10 (ba) SEQ ID NO:177, but excluding the poly(A) tail at the 3' end of SEQ ID NO:177; and

15 (bb) the nucleotide sequence of the cDNA insert of clone nq34_12 deposited with the ATCC under accession number 98663;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

(iii) amplifying human DNA sequences; and

15 (iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:177, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:177 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:177, but

20 excluding the poly(A) tail at the 3' end of SEQ ID NO:177. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:177 from nucleotide 389 to nucleotide 1330, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:177 from nucleotide 389 to nucleotide 1330,

25 to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:177 from nucleotide 389 to nucleotide 1330. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:177 from nucleotide 1286 to nucleotide 1330, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said

30 sequence of SEQ ID NO:177 from nucleotide 1286 to nucleotide 1330, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:177 from nucleotide 1286 to nucleotide 1330.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:178;
- 5 (b) a fragment of the amino acid sequence of SEQ ID NO:178, the fragment comprising eight contiguous amino acids of SEQ ID NO:178; and
- (c) the amino acid sequence encoded by the cDNA insert of clone nq34_12 deposited with the ATCC under accession number 98663;

the protein being substantially free from other mammalian proteins. Preferably such 10 protein comprises the amino acid sequence of SEQ ID NO:178. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:178 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:178, or a protein comprising a fragment of the amino acid 15 sequence of SEQ ID NO:178 having biological activity, the fragment comprising the amino acid sequence from amino acid 152 to amino acid 161 of SEQ ID NO:178.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID 20 NO:179;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:179 from nucleotide 1026 to nucleotide 1226;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:179 from nucleotide 1101 to nucleotide 1226;
- 25 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pj154_1 deposited with the ATCC under accession number 98663;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pj154_1 deposited with the ATCC under accession number 30 98663;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pj154_1 deposited with the ATCC under accession number 98663;

- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pj154_1 deposited with the ATCC under accession number 98663;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:180;
- 5 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:180 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:180;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- 10 (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above;
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and
- (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:179.

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:179 from nucleotide 1026 to nucleotide 1226; the nucleotide sequence of SEQ ID NO:179 from nucleotide 1101 to nucleotide 1226; the nucleotide sequence of the full-length protein coding sequence of clone pj154_1 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone pj154_1 deposited with the ATCC under accession number 98663. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pj154_1 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:180 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:180, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:180 having biological activity, the fragment comprising the amino acid sequence from amino acid 28 to amino acid 37 of SEQ ID NO:180.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:179.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

5 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(aa) SEQ ID NO:179, but excluding the poly(A) tail at the 3' end of SEQ ID NO:179; and

10 (ab) the nucleotide sequence of the cDNA insert of clone pj154_1 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

15 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

20 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:179, but excluding the poly(A) tail at the 3' end of SEQ ID NO:179; and

(bb) the nucleotide sequence of the cDNA insert of clone pj154_1 deposited with the ATCC under accession number 98663;

25 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:179, and 30 extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:179 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:179, but excluding the poly(A) tail at the 3' end of SEQ ID NO:179. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence

- corresponding to the cDNA sequence of SEQ ID NO:179 from nucleotide 1026 to nucleotide 1226, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:179 from nucleotide 1026 to nucleotide 1226, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:179
- 5 from nucleotide 1026 to nucleotide 1226. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:179 from nucleotide 1101 to nucleotide 1226, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:179 from nucleotide 1101 to nucleotide 1226, to a nucleotide
- 10 sequence corresponding to the 3' end of said sequence of SEQ ID NO:179 from nucleotide 1101 to nucleotide 1226.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- 15 (a) the amino acid sequence of SEQ ID NO:180;
- (b) a fragment of the amino acid sequence of SEQ ID NO:180, the fragment comprising eight contiguous amino acids of SEQ ID NO:180; and
- (c) the amino acid sequence encoded by the cDNA insert of clone pj154_1 deposited with the ATCC under accession number 98663;
- 20 the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:180. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:180 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous
- 25 amino acids of SEQ ID NO:180, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:180 having biological activity, the fragment comprising the amino acid sequence from amino acid 28 to amino acid 37 of SEQ ID NO:180.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- 30 (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:181;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:181 from nucleotide 478 to nucleotide 651;

- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:181 from nucleotide 562 to nucleotide 651;
- 5 (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pk147_1 deposited with the ATCC under accession number 98663;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pk147_1 deposited with the ATCC under accession number 98663;
- 10 (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pk147_1 deposited with the ATCC under accession number 98663;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pk147_1 deposited with the ATCC under accession number 98663;
- 15 (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:182;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:182 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:182;
- 20 (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above;
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and
- 25 (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:181.

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:181 from nucleotide 478 to nucleotide 651; the nucleotide sequence of SEQ ID NO:181 from nucleotide 562 to nucleotide 651; the nucleotide sequence of the full-length protein coding sequence of clone pk147_1 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone pk147_1 deposited with the ATCC under accession number 98663. In other preferred

embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone pk147_1 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:182 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:182, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:182 having biological activity, the fragment comprising the amino acid sequence from amino acid 24 to amino acid 33 of SEQ ID NO:182.

10 Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:181.

Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - 15 (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - (aa) SEQ ID NO:181, but excluding the poly(A) tail at the 3' end of SEQ ID NO:181; and
 - (ab) the nucleotide sequence of the cDNA insert of clone pk147_1 deposited with the ATCC under accession number 98663;
 - (ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and
 - (iii) isolating the DNA polynucleotides detected with the probe(s);
- 20 and
 - (b) a process comprising the steps of:
 - 25 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:
 - 30 (ba) SEQ ID NO:181, but excluding the poly(A) tail at the 3' end of SEQ ID NO:181; and

(bb) the nucleotide sequence of the cDNA insert of clone pk147_1 deposited with the ATCC under accession number 98663;

(ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

5

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:181, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ

10 ID NO:181 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:181, but excluding the poly(A) tail at the 3' end of SEQ ID NO:181. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:181 from nucleotide 478 to nucleotide 651, and extending contiguously from a nucleotide sequence corresponding

15 to the 5' end of said sequence of SEQ ID NO:181 from nucleotide 478 to nucleotide 651, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:181 from nucleotide 478 to nucleotide 651. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:181 from nucleotide 562 to nucleotide 651, and extending

20 contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:181 from nucleotide 562 to nucleotide 651, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:181 from nucleotide 562 to nucleotide 651.

In other embodiments, the present invention provides a composition comprising
25 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:182;

(b) a fragment of the amino acid sequence of SEQ ID NO:182, the fragment comprising eight contiguous amino acids of SEQ ID NO:182; and

30 (c) the amino acid sequence encoded by the cDNA insert of clone pk147_1 deposited with the ATCC under accession number 98663;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:182. In further preferred

embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:182 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:182, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:182 having biological activity, the fragment comprising the amino acid sequence from amino acid 24 to amino acid 33 of SEQ ID NO:182.

In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:183;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:183 from nucleotide 1129 to nucleotide 1896;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:183 from nucleotide 1189 to nucleotide 1896;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone pt127_1 deposited with the ATCC under accession number 98663;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone pt127_1 deposited with the ATCC under accession number 98663;
- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone pt127_1 deposited with the ATCC under accession number 98663;
- (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone pt127_1 deposited with the ATCC under accession number 98663;
- (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:184;
- (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:184 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:184;
- (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;

- (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above;
- (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and
- 5 (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:183.

Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:183 from nucleotide 1129 to nucleotide 1896; the nucleotide sequence of SEQ ID 10 NO:183 from nucleotide 1189 to nucleotide 1896; the nucleotide sequence of the full-length protein coding sequence of clone pt127_1 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone pt127_1 deposited with the ATCC under accession number 98663. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein 15 encoded by the cDNA insert of clone pt127_1 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:184 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID 20 NO:184, or a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:184 having biological activity, the fragment comprising the amino acid sequence from amino acid 123 to amino acid 132 of SEQ ID NO:184.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:183.

25 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

- (a) a process comprising the steps of:
 - (i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group 30 consisting of:
 - (aa) SEQ ID NO:183, but excluding the poly(A) tail at the 3' end of SEQ ID NO:183; and

(ab) the nucleotide sequence of the cDNA insert of clone pt127_1 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

5 (iii) isolating the DNA polynucleotides detected with the probe(s);

and

(b) a process comprising the steps of:

10 (i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

(ba) SEQ ID NO:183, but excluding the poly(A) tail at the 3' end of SEQ ID NO:183; and

(bb) the nucleotide sequence of the cDNA insert of clone pt127_1 deposited with the ATCC under accession number 98663;

15 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

20 Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:183, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:183 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:183, but excluding the poly(A) tail at the 3' end of SEQ ID NO:183. Also preferably the

25 polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:183 from nucleotide 1129 to nucleotide 1896, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:183 from nucleotide 1129 to nucleotide 1896, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:183

30 from nucleotide 1129 to nucleotide 1896. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:183 from nucleotide 1189 to nucleotide 1896, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said

sequence of SEQ ID NO:183 from nucleotide 1189 to nucleotide 1896, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:183 from nucleotide 1189 to nucleotide 1896.

In other embodiments, the present invention provides a composition comprising 5 a protein, wherein said protein comprises an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of SEQ ID NO:184;
- (b) a fragment of the amino acid sequence of SEQ ID NO:184, the fragment comprising eight contiguous amino acids of SEQ ID NO:184; and
- 10 (c) the amino acid sequence encoded by the cDNA insert of clone pt127_1 deposited with the ATCC under accession number 98663;

the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:184. In further preferred embodiments, the present invention provides a protein comprising a fragment of the 15 amino acid sequence of SEQ ID NO:184 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:184, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:184 having biological activity, the fragment comprising the amino acid sequence from amino acid 123 to amino acid 132 of SEQ ID NO:184.

20 In one embodiment, the present invention provides a composition comprising an isolated polynucleotide selected from the group consisting of:

- (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:185;
- (b) a polynucleotide comprising the nucleotide sequence of SEQ ID 25 NO:185 from nucleotide 172 to nucleotide 1041;
- (c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:185 from nucleotide 295 to nucleotide 1041;
- (d) a polynucleotide comprising the nucleotide sequence of the full-length protein coding sequence of clone qo115_13 deposited with the ATCC under 30 accession number 98663;
- (e) a polynucleotide encoding the full-length protein encoded by the cDNA insert of clone qo115_13 deposited with the ATCC under accession number 98663;

- (f) a polynucleotide comprising the nucleotide sequence of a mature protein coding sequence of clone qo115_13 deposited with the ATCC under accession number 98663;
 - 5 (g) a polynucleotide encoding a mature protein encoded by the cDNA insert of clone qo115_13 deposited with the ATCC under accession number 98663;
 - (h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:186;
 - 10 (i) a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of SEQ ID NO:186 having biological activity, the fragment comprising eight contiguous amino acids of SEQ ID NO:186;
 - (j) a polynucleotide which is an allelic variant of a polynucleotide of (a)-(g) above;
 - (k) a polynucleotide which encodes a species homologue of the protein of (h) or (i) above ;
 - 15 (l) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i); and
 - (m) a polynucleotide that hybridizes under stringent conditions to any one of the polynucleotides specified in (a)-(i) and that has a length that is at least 25% of the length of SEQ ID NO:185.
- 20 Preferably, such polynucleotide comprises the nucleotide sequence of SEQ ID NO:185 from nucleotide 172 to nucleotide 1041; the nucleotide sequence of SEQ ID NO:185 from nucleotide 295 to nucleotide 1041; the nucleotide sequence of the full-length protein coding sequence of clone qo115_13 deposited with the ATCC under accession number 98663; or the nucleotide sequence of a mature protein coding sequence of clone 25 qo115_13 deposited with the ATCC under accession number 98663. In other preferred embodiments, the polynucleotide encodes the full-length or a mature protein encoded by the cDNA insert of clone qo115_13 deposited with the ATCC under accession number 98663. In further preferred embodiments, the present invention provides a polynucleotide encoding a protein comprising a fragment of the amino acid sequence of 30 SEQ ID NO:186 having biological activity, the fragment preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:186, or a polynucleotide encoding a protein comprising a fragment of the amino acid

sequence of SEQ ID NO:186 having biological activity, the fragment comprising the amino acid sequence from amino acid 140 to amino acid 149 of SEQ ID NO:186.

Other embodiments provide the gene corresponding to the cDNA sequence of SEQ ID NO:185.

5 Further embodiments of the invention provide isolated polynucleotides produced according to a process selected from the group consisting of:

(a) a process comprising the steps of:

(i) preparing one or more polynucleotide probes that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

10 (aa) SEQ ID NO:185, but excluding the poly(A) tail at the 3' end of SEQ ID NO:185; and

15 (ab) the nucleotide sequence of the cDNA insert of clone qo115_13 deposited with the ATCC under accession number 98663;

(ii) hybridizing said probe(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C; and

(iii) isolating the DNA polynucleotides detected with the probe(s);

20 and

(b) a process comprising the steps of:

(i) preparing one or more polynucleotide primers that hybridize in 6X SSC at 65 degrees C to a nucleotide sequence selected from the group consisting of:

25 (ba) SEQ ID NO:185, but excluding the poly(A) tail at the 3' end of SEQ ID NO:185; and

(bb) the nucleotide sequence of the cDNA insert of clone qo115_13 deposited with the ATCC under accession number 98663;

30 (ii) hybridizing said primer(s) to human genomic DNA in conditions at least as stringent as 4X SSC at 50 degrees C;

(iii) amplifying human DNA sequences; and

(iv) isolating the polynucleotide products of step (b)(iii).

- Preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:185, and extending contiguously from a nucleotide sequence corresponding to the 5' end of SEQ ID NO:185 to a nucleotide sequence corresponding to the 3' end of SEQ ID NO:185, but
- 5 excluding the poly(A) tail at the 3' end of SEQ ID NO:185. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:185 from nucleotide 172 to nucleotide 1041, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of SEQ ID NO:185 from nucleotide 172 to nucleotide 1041,
- 10 to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:185 from nucleotide 172 to nucleotide 1041. Also preferably the polynucleotide isolated according to the above process comprises a nucleotide sequence corresponding to the cDNA sequence of SEQ ID NO:185 from nucleotide 295 to nucleotide 1041, and extending contiguously from a nucleotide sequence corresponding to the 5' end of said sequence of
- 15 SEQ ID NO:185 from nucleotide 295 to nucleotide 1041, to a nucleotide sequence corresponding to the 3' end of said sequence of SEQ ID NO:185 from nucleotide 295 to nucleotide 1041.

In other embodiments, the present invention provides a composition comprising a protein, wherein said protein comprises an amino acid sequence selected from the

20 group consisting of:

- (a) the amino acid sequence of SEQ ID NO:186;
 - (b) a fragment of the amino acid sequence of SEQ ID NO:186, the fragment comprising eight contiguous amino acids of SEQ ID NO:186; and
 - (c) the amino acid sequence encoded by the cDNA insert of clone
- 25 q0115_13 deposited with the ATCC under accession number 98663; the protein being substantially free from other mammalian proteins. Preferably such protein comprises the amino acid sequence of SEQ ID NO:186. In further preferred embodiments, the present invention provides a protein comprising a fragment of the amino acid sequence of SEQ ID NO:186 having biological activity, the fragment
- 30 preferably comprising eight (more preferably twenty, most preferably thirty) contiguous amino acids of SEQ ID NO:186, or a protein comprising a fragment of the amino acid sequence of SEQ ID NO:186 having biological activity, the fragment comprising the amino acid sequence from amino acid 140 to amino acid 149 of SEQ ID NO:186.

In certain preferred embodiments, the polynucleotide is operably linked to an expression control sequence. The invention also provides a host cell, including bacterial, yeast, insect and mammalian cells, transformed with such polynucleotide compositions. Also provided by the present invention are organisms that have enhanced, reduced, or 5 modified expression of the gene(s) corresponding to the polynucleotide sequences disclosed herein.

Processes are also provided for producing a protein, which comprise:

- (a) growing a culture of the host cell transformed with such polynucleotide compositions in a suitable culture medium; and
10
- (b) purifying the protein from the culture.

The protein produced according to such methods is also provided by the present invention.

Protein compositions of the present invention may further comprise a pharmaceutically acceptable carrier. Compositions comprising an antibody which 15 specifically reacts with such protein are also provided by the present invention.

Methods are also provided for preventing, treating or ameliorating a medical condition which comprises administering to a mammalian subject a therapeutically effective amount of a composition comprising a protein of the present invention and a pharmaceutically acceptable carrier.

20

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A and 1B are schematic representations of the pED6 and pNOTs vectors, respectively, used for deposit of clones disclosed herein.

25

DETAILED DESCRIPTION

ISOLATED PROTEINS AND POLYNUCLEOTIDES

Nucleotide and amino acid sequences, as presently determined, are reported below for each clone and protein disclosed in the present application. The nucleotide sequence of each clone can readily be determined by sequencing of the deposited clone 30 in accordance with known methods. The predicted amino acid sequence (both full-length and mature forms) can then be determined from such nucleotide sequence. The amino acid sequence of the protein encoded by a particular clone can also be determined by expression of the clone in a suitable host cell, collecting the protein and determining its

sequence. For each disclosed protein applicants have identified what they have determined to be the reading frame best identifiable with sequence information available at the time of filing.

As used herein a "secreted" protein is one which, when expressed in a suitable host cell, is transported across or through a membrane, including transport as a result of signal sequences in its amino acid sequence. "Secreted" proteins include without limitation proteins secreted wholly (e.g., soluble proteins) or partially (e.g., receptors) from the cell in which they are expressed. "Secreted" proteins also include without limitation proteins which are transported across the membrane of the endoplasmic reticulum.

Clone "bd306_7"

A polynucleotide of the present invention has been identified as clone "bd306_7". bd306_7 was isolated from a human fetal kidney cDNA library using methods which are selective for cDNAs encoding secreted proteins (see U.S. Pat. No. 5,536,637), or was identified as encoding a secreted or transmembrane protein on the basis of computer analysis of the amino acid sequence of the encoded protein. bd306_7 is a full-length clone, including the entire coding sequence of a secreted protein (also referred to herein as "bd306_7 protein").

The nucleotide sequence of bd306_7 as presently determined is reported in SEQ ID NO:1, and includes a poly(A) tail. What applicants presently believe to be the proper reading frame and the predicted amino acid sequence of the bd306_7 protein corresponding to the foregoing nucleotide sequence is reported in SEQ ID NO:2. Amino acids 11 to 23 are a predicted leader/signal sequence, with the predicted mature amino acid sequence beginning at amino acid 24. Due to the hydrophobic nature of the predicted leader/signal sequence, it is likely to act as a transmembrane domain should the predicted leader/signal sequence not be separated from the remainder of the bd306_7 protein.

The EcoRI/NotI restriction fragment obtainable from the deposit containing clone bd306_7 should be approximately 3700 bp.

The nucleotide sequence disclosed herein for bd306_7 was searched against the GenBank and GeneSeq nucleotide sequence databases using BLASTN/BLASTX and FASTA search protocols. bd306_7 demonstrated at least some similarity with sequences